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The Steel and Metal DIGEST

VOL. V.

NEW YORK, JANUARY, 1915.

NO. 1.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,

C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburg.

Subscription Price One Dollar a year for United States, Canada and Mexico; for other countries \$1.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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A MOST FAVORABLE OUTLOOK.

The indications of a positive and fundamental change for the better in business conditions, and which we thought we saw demonstrated in the general demand and advances in metals in November has made further progress, but has not been so pronounced in December.

There was a decided falling off in the active buying of the previous month, but metal prices in most cases not only held but in some instances were improved.

Copper advanced $\frac{1}{8}$ c per pound.

Spelter advanced $\frac{3}{8}$ c per pound.

Lead remained unchanged.

Tin being subject to speculative influences, closed $\frac{1}{2}$ c a pound lower than the month opened.

This is an excellent showing, since in the previous month we had seen advances of:

$2\frac{1}{2}$ c on Tin

1 c on Copper

$\frac{3}{8}$ c on Spelter

30c per 100 lb. on lead.

It proves that the November advances were not a "flash in the pan", that they were a response to a genuine change for the better in actual business conditions and prospects.

There is no cause for disappoint-

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ment that the recovery of general trade has been slow in December, because we had to face the reaction from the nerve-wrecking weeks that followed the outbreak of war, the natural attitude of dealers and consumers to do as little in the way of taking on supplies in the closing weeks of the year, and the poor spirits with which balance sheets were awaited, showing as in most cases that 1914 was a bad and unprofitable year.

The opening of the stock exchange has been disappointing to those who thought they saw in the initial advance a steady recovery in values to follow. The capitalist and the well-to-do whose surplus is invested in the properties represented by these securities, feel as poor as at any time, and the investments of the people generally in these properties make the feeling widespread. It is natural that these influences should have dampened the rising tide of November but no ground has been lost, and a good deal gained.

After the shock at the outbreak of war that like an unexpected torpedo smashed against our business ship, sending a quiver throughout its hundred strainers and ribs (our big business interests), and the tens of thousands of the rivets that constitute general business and holds our ship together, stopping our financial machinery with a jar, and leaving us for a few days wallowing in the trough of an angry sea, it was natural that our recovery should be slow. The machinery was sound, our officers and crew able, and with the emergency we developed the ability to meet it. Examination proved very little fundamental damage had been done that could not be repaired, and soon complete control

was restored and our business ship's head put up to the wind and good progress is being made. To expect to speed up again as if nothing had happened is absurd and such a development would be dangerous. The repairs required some unprecedented and extraordinary makeshifts justified by the emergency, but not to be taken liberties with except after being gradually and slowly tested out and proved. Again we are moving and the big screw is increasing its revolution, the snorting of one engine and choking of the piston is gradually changing to the steady music of machinery working smoothly and without friction. But it is only "slow steam ahead" as yet.

Our basic industry, iron and steel, has demonstrated that it has positively turned the corner after having gone through the poorest year it has experienced since the great depression of the early nineties. We expect the unfilled orders of the U. S. Steel Corporation in statements to be issued January 10th to show a very large increase in unfilled orders during December.

While there is also still the chance that another torpedo, at present unseen and unexpected, in the shape of some development in the war, such as England losing command of the sea, and a consequent tying up of shipping facilities and a collapse in our improving export trade may again have to be contended with, it would seem extremely unlikely. A complete and smashing victory over the Allies would also be reflected by serious financial disturbance, but this also seems likewise infinitesimal. Consequently, looking at what is to be expected, we see

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an increasing and very profitable foreign trade, which will wake our domestic trade out of its present lethargy and decrease unemployment.

It does seem that the worst has been discounted, and we have among favorable features which are certain to become powerful; a good harvest being marketed at most profitable prices; a new banking system to afford facilities such as our business interests have not enjoyed in the past; a favorable railroad rate decision that is certain before long to result in purchases from this important consumer, in fact, the movement has, after a period when economies have been pushed to the point of starvation, begun; cheap money and a generally sound condition of credit, finances and business; a cessation of political attacks on business; and lastly, every assurance that the United States, being the country least affected by the war, in fact, in many

industries a gainer by the troubles of Europe, will lead in the recuperation that must follow the world distress of the past few months.

While conservatism is justified until the end of the war is positively in sight still only those who mix with it courage and confidence will be able to look back on 1915 with satisfaction.

What is to follow the end of the war we will not predict, except to say that there must then begin the payment by economy of what it has cost the world. While it is raging, economy is thrown to the winds, and the savings of the populations of the countries involved is being showered into trade in extraordinary expenditures. It may be an unhealthy activity that so many industries are beginning to experience, but it is real nevertheless and must have an effect on general business. The real economic loss damage the war has caused is not in our opinion going to be felt after the war is over.

OCTOBER IMPORTS AND EXPORTS.

Iron and Steel Products Make Favorable Showing.

Since August, the first month of the war, there has been a progressive increase in iron and steel exports, September showing a slight gain over August, and October a large gain over September. Trade reports indicate that November and December have continued the improvement, though the latest government statistics are for October. A detailed statement is given herewith of the tonnage exports and imports by items in the four months July to October inclusive, as well as a comprehensive statement of monthly totals.

Discussing separately the regular tonnage lines of exports, scrap, pig iron, rolled iron and steel, cast and wrought pipe, wire, etc., it may be observed in the first place that while the exports averaged 141,000 gross tons a month during the first six months of

the year, they dropped to 115,000 tons in July, the month just preceding the war, so that it was not much for exports to regain the rate of July. August and September exports were light, but now comes October with a total of 147,293 tons, not only far in excess of the July exports, but also slightly in excess of the June exports or the monthly average in the six months ending June. The greatest increases are in rails and barb wire.

The value of the tonnage lines made a showing equally favorable with the increase in the tonnage. The value of other iron and steel exports, not stated in tonnage, and including machinery, hardware, cutlery, etc., has been increasing somewhat, but is still far below the level of just before the war, and as a result of this the total value

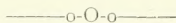
of all iron and steel exports in October is lower than in any month this year before the war, though showing a large increase over August and September.

Iron and steel imports experienced a decrease, the October total, 22,754 tons, being the smallest since February. Rail imports were 1,299 tons, or about the same as in July. September had shown a sharp increase to 7,342 tons, a quantity large enough to be considered really serious.

In the monthly figures pig iron, spiegel-eisen, ferromanganese, etc. (not ferrosilicon) are lumped together and therefore we cannot tell with certainty how much ferromanganese came in, but an approximation can be made. The total were 11,079 tons of pig iron, etc., and 650 tons of ferrosilicon. There is a separate statement of countries of origin, but in this statement ferrosilicon is lumped with pig iron, etc. However, this statement shows that the United Kingdom

sent us 8,444 tons, valued at \$434,125, and as this is over \$50 a ton it must have been nearly all ferromanganese, since all the 650 tons of ferrosilicon would not pull up the average value much. Then Canada sent us 517 tons valued at \$21,255, or over \$41 a ton, and there was probably some ferromanganese in that. Germany succeeded in sending us 1,050 tons valued at \$15,526. This comes out only \$14.80 per ton, which is curious, for we do not usually import pig iron from Germany, but do get ferromanganese. This material evidently was not ferromanganese, however, nor would one expect ferromanganese from that source, when England is endeavoring to prevent her ferromanganese from going thence.

In a year of fairly full operation we have imported about 100,000 tons of ferromanganese, so with the steel industry running so light the October imports were evidently more than sufficient for the month.



EXTREME FLUCTUATIONS IN METAL PRICES IN 1914.

The following shows the **Opening, Highest, Lowest and Average** prices for Year 1914.

DOMESTIC.	Opening.	Highest.	Lowest.	Closing.	Average.
Pig Tin, (Straits) f.o.b. New York	36.80	65.00	28.50	32.80	35.703
Lake Copper, f.o.b. New York	15.37½	15.50	11.30	13.06¼	13.611
Electrolytic Copper, f.o.b. New York ..	14.75	14.87½	11.10	12.80	13.316
Casting Copper, f.o.b. New York	14.43¾	14.65	11.00	12.70	13.178
Waterbury Copper Average .....	.....	.....	.....	.....	13.906
Pig Lead, f.o.b. New York (open market)	4.17½	4.20	3.50	3.80	3.877
Pig Lead, f.o.b. New York (Trust price)	4.15	4.15	3.50	3.80	3.87
Pig Lead, f.o.b. St. Louis	4.07½	4.10	3.35	3.63¾	3.742
Spelter, f.o.b. New York	5.35	6.20	4.75	5.70	5.304
Spelter, f.o.b. St. Louis	5.12½	6.00	4.60	5.50	5.115
Waterbury Brass Mill Spelter Average ..	.....	.....	.....	.....	5.535
Antimony (Cooksons) f.o.b. New York.	7.37½	22.00	7.00	15.75	10.50
Antimony, (Halletts) f.o.b. New York ..	7.05	20.00	6.70	14.25	9.823
Antimony, (Hungarian) f.o.b. New York	6.05	18.00	5.30	13.25	8.535
Aluminum (98 to 99%) New York	18.75	21.50	17.37½	19.12½	18.596
Silver, New York	57½	59¼	47½	48¾	54.812

BUSINESS TRENDS.

BUILDING OPERATIONS.

The following is Bradstreet's record of building expenditures at leading American cities reporting monthly, quarterly and yearly from July, 1912, down to and including December, 1914, shows the ebb and flow in the building industry as follows:

Cities.	1912.	1913.	
July 145	75,501,375	81,580,278	D. 13.7
Aug. 146	63,720,880	84,462,183	D. 23.6
Sep. 143	76,720,050	68,680,476	I. 11.7
3d quarter	215,942,305	239,722,967	D. 10.0
9 months.	679,129,151	714,476,512	D. 5.0
Oct. 144	63,035,385	73,128,886	D. 13.8
Nov. 145	50,405,703	71,176,911	D. 29.1
Dec. 146	67,409,818	72,180,455	D. 6.6
4th quarter	180,847,906	216,486,252	D. 16.4
Year	859,977,057	939,962,764	D. 7.6
	1914.	1913.	
Jan. 146	45,999,862	55,514,979	D. 17.1
Feb. 148	51,376,112	62,784,999	D. 18.1
Mar. 150	85,610,997	83,388,638	I. 2.6
1st quarter	181,986,971	201,688,616	D. 9.7
Apr. 150	83,364,426	97,405,899	D. 14.4
May 146	82,761,751	86,809,963	D. 4.6
June 150	85,532,913	82,999,953	I. 3.0
2d quarter	251,659,090	267,215,847	D. 5.8
July 152	82,857,507	78,786,703	I. 5.1
Aug. 152	62,976,115	65,763,413	D. 4.0
Sep. 153	53,356,994	79,730,232	D. 33.0
3d quarter	199,190,676	224,220,378	D. 11.1
Oct. 152	52,212,491	66,141,492	D. 21.0
Nov. 151	43,882,352	50,618,911	D. 13.3
Dec. 142	41,603,322	54,743,855	D. 42.2
4th quarter	127,698,165	171,534,258	D. 25.5
Year	760,534,902	864,659,099	D. 12.0

PIG IRON PRODUCTION.

Daily rate of production of coke and anthracite pig iron, gross tons, as reported by the Iron Age.

	1910.	1911.	1912.	1913.	1914.
Jan.	84,148	56,752	66,384	90,172	60,808
Feb.	86,616	64,090	72,442	92,369	67,453
Mar.	84,459	70,036	77,591	89,147	75,738
April.	82,792	68,836	79,181	91,759	75,665
May.	77,102	61,079	81,051	91,039	67,506
June.	75,516	59,595	81,358	87,619	63,916
July.	69,305	57,841	77,738	82,601	63,150
Aug.	67,963	62,150	81,046	82,057	61,363
Sep.	68,476	65,903	82,128	83,531	62,753
Oct.	67,520	67,811	86,722	82,133	57,361
Nov.	63,659	66,648	87,697	74,453	50,611
Dec.	57,349	65,912	89,766	63,987	48,896

NEW INCORPORATIONS.

In support of the contention of prominent new enterprises that the past year has been the most disappointing one they have ever experienced, the returns specially compiled by The Journal of Commerce covering incorporations in 1914 and companies with a capital of \$100,000 or over indicate a total of only \$1,581,418,000. This compares with \$2,191,659,200 in 1913. Of this total, concerns formed in the Eastern States with a capital of \$1,000,000 or over furnished \$894,947,500, against \$1,534,254,300.

The year 1901 holds the distinction of being the banner year for incorporations, when the steel trust was organized, and the charters taken out in the Eastern States reached the phenomenal total of \$3,714,105,000.

Following are comparative figures of companies incorporated in Eastern States during the last three years with an authorized capital of \$1,000,000 or more.

	1914.	1913.	1912.
Jan.	\$120,059,000	\$332,450,000	\$210,720,000
Feb.	51,575,000	191,500,000	166,000,000
Mar.	57,700,000	166,030,000	179,578,000
April.	136,185,000	198,718,000	281,157,000
May.	62,700,000	172,200,000	140,284,000
June.	70,070,000	79,550,000	280,170,000
July ..	68,700,000	83,650,000	253,518,000
Aug.	50,600,000	67,500,000	164,500,000
Sept. .	54,800,000	42,750,000	115,050,000
Oct. .	35,487,500	70,856,300	169,495,000
Nov.	81,650,000	77,800,000	174,200,000
Dec.	105,450,000	55,250,000	200,100,000
Total	\$894,947,500	\$1,534,254,300	\$2,295,172,000

COMMERCIAL FAILURES.

In the following table will be found the record of failures monthly and quarterly as reported by Bradstreet's Journal during the year 1914.

	No. of failures.	Assets.	Liabilities.
Six months..	7,748	\$6,542,255	148,306,313
July	1,219	19,292,236	50,545,567
August	1,191	16,282,462	37,128,027
September ..	1,367	24,254,214	32,605,887
3d quarter ..	3,777	59,828,912	120,279,481
Nine months	11,525	143,348,164	248,853,294
October	1,445	12,561,007	25,564,466
November ..	1,586	13,366,004	24,580,561
December ...	2,213	21,202,479	38,165,898
4th quarter ..	5,244	47,129,480	88,310,925
Twelve mos.	16,780	199,921,007	382,734,777

RAILWAY CONSTRUCTION.

Annual Statistics of Track Laying and Car and Locomotive Building.

The "Railway Age Gazette" has published in its regular annual compilation of railway statistics, giving for 1914 the number of miles of new line and of main line track laid, the number of cars and locomotives ordered and the number built.

The new mileage of road built in the United States in 1914 was the smallest since 1895, and was only 104 miles in excess of the length in that year. This is if we take the Railway Age Gazette's figures, which commence with 1893. In an effort to carry the comparison farther back, by referring to Poor's statistics (no longer compiled) and which began with the start of American railroading, we find no year with as light annual increase in mileage since 1865, for Poor's statistics showed an increase in mileage during 1895 of 1,700 miles, against 1,428 miles given by the Railway Age Gazette as the new railroad laid in that year. The railway paper's figures are as follows:

Miles of New Road Built.

1893.....	3,024
1894.....	1,760
1895.....	1,428
1896.....	1,692
1897.....	2,109
1898.....	3,265
1899.....	4,569
1900.....	4,894
1901.....	5,368
1902.....	6,026
1903.....	5,652
1904.....	3,832
1905.....	4,388
1906.....	5,623
1907.....	5,212
1908.....	3,214
1909.....	3,748
1910.....	4,122
1911.....	3,066
1912.....	2,997
1913.....	3,071
1914.....	1,532

In addition to the above statistics of new road built, for the past three years the Railway Age Gazette has gathered the miles of second, third and fourth track built, not including yard and siding track. For the

three years the comparison is as follows:

Track Laying, Miles.

	1912.	1913.	1914.
New line	2,997	3,071	1,532
Second, third, fourth track	1,215	1,396	595
Total	4,212	4,467	2,127

Cars built and cars ordered are reported separately. Cars built are given as follows:

Freight and Passenger Cars Built Each Year Since 1899.

Year.	Freight.	Passen-ger.	Total.
1899.....	119,886	1,305	121,191
1900.....	115,631	1,636	117,267
1901.....	136,950	2,055	139,005
1902.....	162,599	1,948	164,547
1903.....	153,195	2,007	155,202
1904.....	60,806	2,144	62,950
1905*.....	165,155	2,551	168,006
1906*.....	240,503	3,167	243,670
1907*.....	284,188	5,457	289,645
1908*.....	76,555	1,716	78,271
1909*.....	93,570	2,849	96,419
1910*.....	180,945	4,412	185,357
1911*.....	72,161	4,246	76,407
1912†.....	152,429	3,060	155,489
1913†.....	207,684	3,296	210,195
1914†.....	104,541	3,691	108,232

*Includes Canadian output.

†Includes Canadian output and equipment built in railroad shops.

Locomotives built are reported as follows:

Locomotives Built.

1900.....	3,153
1901.....	3,384
1902.....	4,070
1903.....	5,152
1904.....	3,441
1905*.....	5,491
1906*.....	6,952
1907*.....	7,362
1908*.....	2,342
1909*.....	2,887
1910*.....	4,755
1911*.....	3,530
1912†.....	4,915
1913†.....	5,332
1914†.....	2,235

*Includes Canadian output.

†Includes Canadian output and equipment built in railroad shops.

The freight cars ordered during 1914 are

reported at 80,264, confirming quite closely our own summary, carried at intervals through the year and showing a final total for the year of 77,000. The orders placed fall 24,000 short of the freight cars built, indicating that orders on hand at the beginning of the year amounted to a round total, but as is well known practically all orders were cleaned up by the end of the year. The orders placed are shown below, for the United States, Canada and Mexico.

Year	Number of Locomotives and Cars Ordered.		
	Cars	Locomo-	Passen-
	tives.	ger.	Freight.
1907.....	3,482	1,791	151,711
1908.....	1,182	1,319	62,669
1909.....	3,350	4,514	189,360
1910.....	3,787	3,881	141,204
1911.....	2,850	2,623	133,117
1912.....	4,515	3,642	234,758
1913.....	3,467	3,179	146,732
1914.....	1,265	2,002	80,264

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of \$1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	\$1,025	\$698	\$327	\$1,113	\$750	\$363	\$1,161	\$814	\$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,127	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	74	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ...	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ...	932	728	203	1,087	803	284	1,005	776	229
Feb. ...	964	710	254	1,011	752	259	900	729	171
Mar. ...	1,051	746	305	1,081	799	282	1,076	782	294
April ..	974	717	257	1,065	802	262	1,021	763	258
May ...	1,030	735	295	1,150	830	320	1,030	779	250
June ...	1,075	737	339	1,135	801	334	1,079	768	311
Totals.	\$12,605	\$8,718	\$3,888	\$13,730	\$9,514	\$4,216	\$13,267	\$9,558	\$3,709

Beginning July 1, 1914, a new system was established, whereby the railroads, instead of reporting figures as given above, and then reporting in addition the "net revenue from outside operation" (boat lines, electric lines, cabs, etc.) must include such revenue with total operating revenue. With the fresh figures as reported under the new system are given figures for the month a year earlier, compiled in the same manner, for comparative purposes, the compilation being made by the Bureau of Railway Economics. The Interstate Commerce Commission discontinued its monthly reports after that for August, 1914.

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	\$1,183	\$837	\$346	\$1,124	\$785	\$339
August	1,244	856	388	1,175	789	386
September	1,257	854	403	1,182	781	401
October	1,311	801	510	1,169	786	383

METALLURGY AND THE WAR.

As Viewed by English Authorities.

In Birmingham, England, on December 17, there was a joint meeting of the local Metallurgical Society and the local Section of the Institute of Metals for the purpose of discussing the relationship between metallurgy and the war. Professor T. Turner, who presided, remarked that metal supplies and the right use of metals were likely to be determining factors in connection with the war. One of the greatest tributes they could pay to the Navy was to quote the prices of metals ruling in this country last week. It was necessary to remember that our supplies of raw materials now came largely from abroad, and yet the prices of metals the previous week were approximately: copper 56*l.* and tin 148*l.* Both of these were considerably lower than they were two years ago. Lead at 19*l.* and spelter at 27*l.* were high, but not abnormally high for those metals; Cleveland pig iron was 52*s.* per ton.

Iron, Spelter and Tin Production.

Each party in the conflict—Germany and Austria on the one hand, and ourselves and our Allies on the other—was self-contained in the matter of iron and steel production, except in the case of iron ores of special purity. The importation of those ores had fallen off in this country and had ceased in Germany. On the other hand, we had the chief manganese supplies in the world—a fact which might prove of considerable importance before the war was at an end. There were also chrome iron ores and considerable quantities of tungsten in the Empire which could be developed as required.

The three chief sources of supply of spelter were the United States, Belgium and Silesia. The two last-named sources had been closed since the beginning of the war. The annual production in this country was something like 70,000 tons—more than sufficient to meet the necessities of war, though not sufficient to meet the requirements of trade. Additional supplies, however, could be obtained from the United States. He hoped, as a result of their present experiences, that the manufacture of spelter would be developed in this country. We had ores in this country and in our Colonies, like Broken Hill residues, which had been exported to Germany to be worked up.

Tin was only made to a moderate ex-

tent in England from English ores; but we had tin from the Straits Settlements, from the Transvaal, and from Nigeria, so that the British Empire occupied an important position in reference to the world's supply of tin. Germany would suffer from a deficiency of tin, because the greater part of the metal was brought to this country for distribution.

Nickel was made in Birmingham and in South Wales, but the total quantity made here was quite moderate. The nickel ores were chiefly supplied from British Dominions, but a good deal of ore in the form of concentrates was sent to the United States and there converted into nickel.

Aluminum was largely made in this country, and could also be obtained from America and from other parts of the world.

Germany's Need of Copper.

Professor Ashley said that so far as iron and steel were concerned Germany was self-contained in the main, but in regard to copper she appeared to be vulnerable. Germany was now the second copper-using country in the world after the United States, and she used about half as much again as England. She used about a quarter of the world's output; but she had very little copper of her own, and therefore for the development of those industries which required copper Germany had become increasingly dependent upon importation. In 1902 Germany consumed about 100,000 tons of copper, and about one-fourth of that she produced herself. In 1912 she consumed 230,000 tons, approaching two and a half times as much as ten years before, and of that quantity she produced only one-tenth herself. Germany was therefore dependent upon importation for nine-tenths of her copper. She obtained about fourteen-fifteenths of her imports of that metal from the United States and the rest from England and Australia. The published records showed that in May, Germany had 8,000 tons of copper in stock. It was highly probable, however, that the shipbuilding and armament firms had considerable supplies by them, but he could not conceive that, if the war should continue for a year, Germany would be able to obtain the copper she needed. The difficulty of obtaining raw materials like cotton, wool, and copper

would hasten the termination of the war.

The Merton Interests.

Owing to the elaborate statistics compiled by, and to the immense influence wielded by, the great Merton interests, the big German copper concerns knew every ounce of copper in the world and the way to get it; and, although they would be hard pressed, they would put up a very stiff fight indeed in order to get it.

Mr. Robert Bunting, of Sheffield, thought the present prices of raw materials would continue to rule; an advance would not be justified. The pressure for all sorts of metals need not be expected to cease for a very considerable time. Following the war, trade would be brisk; in fact, more than brisk, resulting from the necessary replacement of losses caused by the war, and also from the increase in the means of production which that replacement would necessitate.

Mr. George Hatton said the war had had a stimulating effect on the iron and steel trade, and the effect of the war, when it was over, would be still a stimulating one. France and Belgium would be consumers of iron and steel to a very large extent for some time to come. It would take Germany a long time to recover her iron and steel trade, but her iron and steel developments were prodigious, and she had immense natural resources, as, for example, the iron-ore deposit in Lorraine, where geologists considered there was available 350 million tons of ore. That had to be developed ultimately. She had also large coal resources, and ultimately she must come to the front again as a very large iron and steel producing country.

Mr. F. Johnson, referring to the machine-tool industry, said it was impossible for manufacturers to keep pace with the demand.

The Spelter Problem.

Mr. C. H. Barwell, President of the Birmingham Section of the Institute of Metals,

emphasized the folly of allowing Broken Hill concentrates to be sent to Silésie to be treated, when they might be dealt with to much better advantage in this country. It was necessary to adopt improved methods of treatment, however, in order to ensure the production of the high-grade spelter now required for the manufacture of alloys. Until two years ago nothing but the finest 70.30 brass was good enough for use in connection with the manufacture of munitions of war, but now, owing to improvements in the quality of the copper and spelter used especially the latter, which could be had at 99.9 purity, they got results quite as satisfactory from a 60.40 alloy.

Superior German Technology.

Captain Fmdin, R.N., alluding to the "elaborate reports brought out by Mertons," said one of the lessons they had to learn from them was the thoroughness with which our enemies entered into all their work.

Mr. Alexander Tucker considered that we should do well to recognize the immense superiority of German technology and emulate it. If we did that we should emerge from the struggle a more educated people.

Mr. Hemman said that our nickel and cobalt supplies were quite satisfactory. He urged Sheffield manufacturers to consider the advisability of taking up metallic cobalt in its application to the production of cobalt steel.

Mr. F. C. A. H. Lantberry contended that British chemical and metallurgical technologists compared favorably with those of any other country in the world. We only lacked in that we did not apply science to industry sufficiently. If British manufacturers wished to capture and hold German markets they should commence their preparations now.

Continued

INDUSTRIAL RELATIONS.

Report of Commission on Causes of Industrial Unrest.

Reasons for industrial unrest constitute the feature of first annual report of United States commission on industrial relations. It states no conclusions, but simply summarizes testimony of 500 witnesses, taken at hearings in Washington, New York, Paterson, Philadelphia, Boston, Chicago, Lead (South Dakota), Butte, Seattle, Portland, Oregon, San Francisco and Los Angeles.

Causes of industrial unrest generally agreed on by both employers and employees:

Largely a world-wide movement arising from laudable desire for better living conditions.

Protest against low wages, long hours and improper working conditions in many industries—advanced by labor representatives and assented to by many employers.

Desire by workers for a voice as to conditions under which they labor, and a revolt against arbitrary treatment of individual workers and a suppression of organization. This was almost uniformly approved by labor witnesses.

Unemployment and insecurity of employment—generally advanced by witnesses from every standpoint.

Unjust distribution of products of industry—advanced by most labor representatives, agreed to by most employers.

Misunderstanding and prejudice—agreed to by employers and employees.

Agitation and agitators—generally advanced by employers, but defended by labor representatives and others as a necessary means of education.

Rapid rise in prices compared with wages.

Growing feeling that redress for injuries and oppression cannot be secured through existing institutions.

"In addition," says the report, "It has been stated by many witnesses that tremendous immigration of the last quarter century has accentuated conditions arising from other causes, by creating oversupply of labor unfamiliar with American customs, language and conditions."

Causes of unrest advanced by employers were:

Misunderstanding and prejudice. Lack of conception that interests of both labor

and capital are identical.

Agitation by politicians and irresponsible agitators.

Unemployment.

Unreasonable demands arising from strength and organization.

Labor leaders who stir up troubles to keep themselves in office and to graft on employers.

Inefficiency of workers, resulting in increasing cost of living.

Rapidly increasing complexity of industry.

Universal craze to get rich quick.

Decay of old ideas of honesty and thrift.

Too much organization for combative purposes instead of for co-operation.

Violence in labor troubles.

Sympathetic strikes and jurisdictional disputes.

Boycotting and picketing.

Meddlesome and burdensome legislation.

The closed shop, which makes for labor monopoly. Financial irresponsibility of labor unions.

By employees the following causes of unrest were advanced:

Protest against low wages, long hours, unsanitary and dangerous conditions in many industries.

Unemployment and insecurity which the wage earner feels at all times.

Unjust distribution of the profit of industry. "Exploitation of the many by the favored few." "Demand for full share of production."

Unjust attitude of police and courts.

One law for the rich and another for the poor.

Immigration and consequent oversupply of labor.

A "double-standard," which sanctions only a poor living in return for hardest manual labor, and luxury for persons who perform no useful service whatever.

Control by "Big Business" over both industry and state.

Inefficiency of workers through lack of proper training.

Unfair competition from prison and other exploited labor.

Rapid pace of modern industry, which results in accidents and premature old age.

Arbitrary discharge of employees.

Blacklisting of individual employees.

Exploitation of women and children in industry.

Promotion of violence by the use of gunmen, spies, and provokers hired by employers.

Attempt to destroy unionism by pretense of "open shop."

Monopolization of land and natural resources.

Suppression of free speech and peaceful assembly.

Regarding mediation and arbitration, says the report, expert witnesses from both sides unanimously endorsed mediation used to greatest possible extent, and that machinery for prompt impartial arbitration be developed to secure peaceful settlement where mediation and conciliation fail.

"Practically every witness expressed the strongest disapproval of compulsory arbitration. Arbitration was suggested only as a last resort and then purely voluntary.

"There was practically unanimous agreement that a federal commission of mediation and conciliation, composed of representative employers and employees, would be a desirable step."

STANDARD OF CLASSIFICATION FOR OLD METALS.

The following standard of classification for old metals has been adopted by the National Association of Waste Material Dealers to be effective after January 2nd, 1915. This Standard of Classification was unanimously adopted at a meeting of the Metal Division held on December 14, 1914, which action was approved by the Executive Committee of the Association on the same date.

Delivery.

1. Delivery of more or less on the specified quantity up to $2\frac{1}{2}$ per cent is permissible.

2. If the term "about" is used, it is understood that 5 per cent more or less of the quantity may be delivered.

3. Should the seller fail to make deliveries as specified in the contract, the purchaser has the option of cancelling all of the uncompleted deliveries or holding the seller for whatever damages the purchaser may sustain through failure to deliver and if unable to agree on the amount of damages the Arbitration Committee of the National Association of Waste Material Dealers, appointed for this purpose, to determine the amount of such damages.

4. In the event that buyer should claim the goods delivered on a contract are not up to the proper standard, and the seller claims that they are a proper delivery, the dispute shall be referred to the Arbitration Committee of the National Association of

Waste Material Dealers, to be appointed for that purpose.

5. A contract for a carload, unless otherwise agreed upon, shall mean the minimum quantity recognized by the official classification tariff of the district in which the seller is located.

6. A ton shall be understood to be 2,000 pounds, unless otherwise specified.

Heavy Copper—This shall consist of copper not less than 1-16 inch thick, and may include Trolley Wire, Heavy Field Wire, Heavy Armature Wire, that is not tangled, and also new Copper Clippings and Punchings, untinned and clean, and copper segments that are clean.

No. 1 Copper Wire—To consist of clean untinned copper wire not smaller than No. 16 B. & S. wire gauge, to be free from burnt copper wire which is brittle and all other foreign substances.

No. 2 Copper Wire—To consist of miscellaneous clean copper wire such as of necessity, would be taken out of the heavy copper and the No. 1 copper wire, but be free of hair wire, and burnt wire which is brittle.

Light Copper—Shall consist of the bottoms of kettles and boilers, bath tub linings, hair wire, burnt copper wire which is brittle, roofing copper and similar copper, free of visible iron, brass, lead and solder connections, old electrotypes shells free of excessive paint, tar and scale.

Composition or Red Brass—Shall consist of red scrap brass, valves, machinery bearings and other parts of machinery, including miscellaneous castings made of copper, tin, zinc and lead, no piece to measure more than 12 inches over any one part, to be free of aluminum and manganese, also free of railroad boxes, cocks and faucets, gates, pot pieces, ingots and burned brass.

Railroad Bearings—Shall consist of railroad boxes or car journal bearings; must be old standard used scrap, free of yellow boxes, plastic and similar bearings, also iron-backed boxes, and must be free of babbitt; also free of excessive grease and dirt.

Cocks and Faucets—To be mixed red and yellow, free of gas cocks and beer faucets; shall be at least half red.

Heavy Yellow Brass—Shall consist of heavy brass castings, rolled brass, rod brass ends, brass screws and tinned or nickel-plated brass tubing; to be free of iron and dirt, and must be in pieces not too large for crucibles, no piece to measure more than 12 inches over any one part; must also be free of aluminum and manganese mixtures. Condenser tubes shall not be considered as heavy brass.

Light Brass—Shall consist of light sheet brass, forks and spoons, miscellaneous brass that is too light for heavy, but to be free of any visible iron, gun shells containing paper or iron, loaded lamp bases, and of clock works.

New Brass Clippings—Shall consist of the cuttings of new sheet brass to be absolutely clean and free from any foreign substances.

Brass Tubing—Shall consist of brass tubing, free of nickel-plating, tinned soldered, or tubes with cast brass connections

To be sound, clean tubes, free of sediment and condenser tubes.

No. 1 Composition Turnings—To be free of aluminum, manganese, plastic and yellow brass turnings, not to contain over 2 per cent iron; to be free of grindings or foreign material, especially babbitt, and free from adulterations made to resemble metal. Turnings not according to this specification subject to sample.

No. 1 Yellow Brass Turnings—Shall consist of strictly rod turnings, free of aluminum, manganese, composition and tobin turnings. Not to contain over 3 per cent of iron, oil or other moisture, to be free of grindings and babbitts. To avoid dispute, to be sold subject to sample.

No. 1 Pewter—Shall consist of tableware and soda fountain boxes, but in any case must test 84 per cent tin. Syphon tops to be treated for separately.

Auto Radiators—To be classed separately; must be free of iron.

Zinc—Must consist of clean sheet and cast zinc, also cast batteries to be free of loose oxide and dross, salamoniac cans and other foreign materials.

Tin Foil—Shall consist of pure foil free of lead compositions and other foreign ingredients and matters.

Electrotype Shells—Must be hand picked and free of dross.

Packages—Shall be good strong packages, suitable for shipment, and each package to be plainly marked with the gross and tare weights, so that when packages reach their destination, their weights can be easily checked.

When goods are not packed according to the above specifications and shipper wants his rejections returned, the cost of labor shall be charged to the shipper.

TOPICAL TALKS ON IRON.

XXII. Steel Adapted to its Use.

The changes in the steel industry have always been kaleidoscopic. Prices have always shown a disposition to rush upwards or downwards. It is true that for nearly four years, say from early 1905 to early 1909 there were fairly steady steel prices, and the doctrine was preached for awhile that "steady prices make steady demand", but the total demand since 1907 up to the present date, seven years, has constituted a smaller proportion of the productive capacity in existence than has been the case in any other seven years in the steel industry's history, so that there is room for a theory that the steady prices at that time caused an anticipation of requirements, an overbuilding, which had to be made up later, so that the exception possibly proves the rule that the natural tendency is for prices to fluctuate within wide limits.

In methods of production the changes have been kaleidoscopic. Bessemer steel supplanted wrought iron as rail material with remarkable suddenness in the late seventies and in the early nineties a similar rapid supplanting occurred in the case of the majority of rolled forms. In only the next decade open-hearth steel suddenly made great inroads upon Bessemer.

These were changes in the character of the material used, wrought iron, Bessemer steel or open-hearth steel, but the changes were effected by changing the entire process of manufacture. In very recent years another great change has started in the character of steel, by relatively minor modifications in methods of manufacture, yet producing much more radical differences in the character of the steel than exist between wrought iron and soft Bessemer or soft open-hearth steel.

The sweeping character of this change is appreciated by enterprising steel manufacturers, but probably not by the majority of steel users. One hears a great deal, of course, about steel for special uses, but there is more or less of a tendency towards confusion of ideas, the idea frequently being that a special steel is for a special use, with an emphasis on the "special use" as if most uses of steel were not special, whereas the obvious fact is that each use of steel is a special use. There is no general use

of steel. To illustrate, one does not buy a piece of steel and use it for awhile as a machine bolt, then as a concrete reinforcement and then perhaps as an automobile axle. For each of those uses, and for thousands of others, there can be made steel especially adapted. The machine bolt requires strong steel, in a way, but in particular it requires steel that will thread well, strength being readily obtained by making the bolt large enough. For concrete reinforcement, on the other hand, stiffness is the first consideration. With the automobile axle, again, there is an entirely different quality that is of first importance, capability of enduring an enormous number of repeated strains.

A reader may be disposed to question the precise accuracy of a statement that the change from ordinary steel to special steel, or adapted steel, is sudden. It may be said that the specialists have been working for many years in the study of alloying steel, heat treating steel and other methods of producing particular physical qualities, and have made fairly steady progress year by year, so that there is nothing sudden about it. We grant that there is nothing particularly sudden about the progress of the scientific study of steel, though it is a fact that the progress has been very rapid in recent years, but we maintain nevertheless that as to the steel industry the change is a sudden one. The steel industry is the industry of making steel, not of studying steel and putting the information obtained on paper. It is not a record to be proud of, but it is a fact that for years the steel makers, with relatively few exceptions, were dead set against the making of special steels. They so reveled in the fact that theirs was a tonnage industry that they slipped into the viewpoint of expecting consumers to buy more steel, make the piece bigger if they wanted it stronger, or more durable, or what not. How could a mill get out tonnage if it had to follow up individual orders and fill them with different descriptions of steel?

With considerable suddenness the large steel manufacturers began to realize that they must adopt the new ideas, that if the performance of steel would be more satis-

factory if made in one way for one use and in another way for another use it would be necessary to make it so in somebody else would. For a short time, indeed, it looked as though the small mills would make the special steels and the large mills the ordinary steels, but eventually the large mills recognized the situation, and it is well for them that they did, for it will not be many years until there is very little

"ordinary" steel called for. To-day the buyer desiring a particular kind of steel is as likely to go to a large mill as a small mill. Physical conditions may make it easier for the small mill to make a special order, but the large mill on the other hand has had a broader and more varied experience. To an extent, each mill is likely to pick out the specialties for the furnishing of which it is particularly adapted by position.

IRON AND STEEL IN 1914.

At the opening of this new year we must review the year just ended not for its record of achievement but for what it has done or left undone that may give us a suggestion of what we may expect in the new year. A bare history of the iron and steel market in a year, so often written and so seldom read, would in this present instance be simply a summary of the eleven monthly market reports we have published, plus a contribution for the month of December just ended.

Production and Prices.

Before discussing the bearing of what occurred in 1914 it may be well to place before us a few facts in concrete form. The production of pig iron was about 23,200,000 gross tons, representing a decrease of 25% from 1913, the banner year. The production was slightly less than in the lean year 1911 and was the smallest since 1905, excepting 1908, over which it showed an improvement of 46%—but that is discreditable to 1908 rather than creditable to 1914. There was a considerable accumulation of pig iron in 1914, both by merchant furnaces and by steel works interests, and there is reason to believe that with a decrease of 27% in pig iron in 1913 there was a decrease of between 30 and 35% in steel ingots and in rolled steel, making for 1914 say 21,000,000 gross tons of steel ingots and say 16,000,000 gross tons of rolled steel.

The average quoted price for pig iron in 1914 (shown by our composite of various descriptions of pig iron) was \$1.90 a ton less than in 1913 and constituted the lowest average since 1904, exceeding that average by only 18 cents, and otherwise being the lowest annual average since 1898.

The average price of finished steel products (shown by our composite of various finished products) was 1.518c. or \$4.12 per net ton less than the average in 1913, and constituting the lowest annual average since 1898.

The general swing in pig iron and steel prices in 1914 is shown below, the quotations referring to composite pig iron and composite finished steel respectively:

	Pig iron	Steel
Opening	\$13.545	1.535c.
High	13.850	1.593c
Low	13.33	1.423c
Close	13.030	1.423c

The high in pig iron was from April 3 to May 20, and in steel February 4 to 9. The low in pig iron was November 13 to 24, and again December 28 to 31. The low in steel was December 30 and 31.

What Did 1914 Mean?

What did it mean? The great European conflict was not the sole cause of the year being bad, for it involved only five months of the year, and conditions were bad during the preceding seven months. What occurred prior to the war was not without its parallel; in fact, the last two great swings in the iron and steel market were not greatly dissimilar. In 1909 there was a sharp recovery after the February break in prices, there being feverish buying for months, with prices advancing from May to December inclusive. There followed a period of steady prices developing eventually into declines, and a gradual decline in production. In 1912 there occurred likewise a recovery, similarly followed by declining prices and decreasing demand. The 1912 recovery in prices was spread over a slightly longer period of time, and did not

IRON AND STEEL.

carry prices to as high a level, compared with 1909. It was similar in character but less pronounced. Both 1910 and 1913 were years of record production but of softening prices, and both 1911 and 1914 were distinctly off years, with very light production and extremely low prices.

Without going further into details, there is reason to conclude that the 1912 movement furnished less that required liquidation than did that of 1909. The course should have been run in shorter time. After the 1909 buying the high point in production was February, 1910, the low point falling in midsummer, 1911, while

prices continued to decline until November, 1911. After the 1912 movement the high point in production was early, 1913, and to duplicate the previous cycle the low point in production should have fallen in the third quarter of 1914. The low point in prices falling about the middle of the year. There was, however, no liquidation, of course, for the 1912 rise was not as extensive as that of 1909, and prices fell more in 1913 than they did in 1910. The turn to a general and prolonged improvement ought to have come about midsummer, 1914.

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago prices are delivered)

	--- No. 2 Ily ---						Ferro-		Fur-	
	Bessemer, Basic, No. 2 Ily, Valley	Basic No. 2 Ily, Phila.	Basic No. 2 Ily, Phila.	Basic No. 2 Ily, Buffalo.	Basic No. 2 Ily, Cleve-	Basic No. 2 Ily, land.	Chi-	Birm-	mangan-	nace
							cago.	ingham.		
1913—										
Jan. . .	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00 3.85
Feb. . .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00 2.60
Mar. . .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00 2.47
April . .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	64.00 2.20
May . .	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00 2.15
June . .	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00 2.20
July . .	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00 2.50
Aug. . .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70 2.50
Sept. . .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50 2.37
Oct. . .	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28 2.10
Nov. . .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00 1.88
Dec. . .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00 1.77
Year . .	16.26	14.77	14.87	16.27	16.56	15.12	15.37	16.39	11.73	57.87 2.08
1914—										
Jan. . .	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42 1.88
Feb. . .	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33 1.90
Mar. . .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40 1.92
April . .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00 1.90
May . .	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00 1.83
June . .	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00 1.80
July . .	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50 1.75
Aug. . .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00† 1.74
Sept. . .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00 1.70
Oct. . .	13.97	12.88	12.89	14.00	14.29	12.74	13.41	13.48	10.00	68.00 1.65
Nov. . .	13.75	12.50	12.75	14.00	14.24	12.57	13.50	13.10	10.00	58.00 1.60
Dec. . .	13.75	12.50	12.75	14.50	14.25	12.51	13.00	13.40	9.67	58.00 1.60
Year . .	13.99	12.89	13.02	14.02	14.50	13.06	13.76	14.15	10.24	77.80 1.70

* Contract price, f.o.b. Baltimore; † Premium on f.o.b. Greenville.

‡ Spot shipment; no contract made.

IRON AND STEEL.

Seven Years of Depression?

It can be figured out very nicely that a general and prolonged improvement really did start at midsummer, 1914, but was interrupted by the war. Before discussing that question it is well to step back and take a very long range view again. We have just been discussing two round trip movements of the market, each embracing less than a year of improving conditions but about two years of reaction and liquidation. Is that natural? In each case the high point in production was reached after the buying had ceased. There was really no life in these movements. They were built on excitement and whatever strength the market had was due to the mills yielding so grudgingly and slowly what the excite-

ment of a few months had brought them.

Taking the whole period of seven years from the panic of October, 1907, to the middle or latter part of 1914, how shall one characterize that period? There are those who say we have been passing through a regular and prolonged industrial depression, comparable with that of 1893 to 1898 as follows: similar in character, two years longer in extent, much less severe in degree. At this late date the depression of the nineties is frequently regarded as simply a long nightmare, but recalling the details it is to be remembered that there was a sharp and very excited rise in 1895, also that 1896 stood out beyond the other years of depression as to badness and that 1898 was not altogether an unprofitable year.

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

										Composite
Shapes, Plates, Bars, Pipe.				Wire Cut		Sheets		Tin	Finished	
				Wire, Nails.	Nails.	Black.	Galv.	plate.	steel.	
1913 —										
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.72	3.47	3.60 1.7737
February	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60 1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60 1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60 1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60 1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60 1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60 1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60 1.7400
September	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60 1.7093
October	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50 1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40 1.6203
December	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40 1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56 1.7241
1914—										
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40 1.5394
February	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40 1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40 1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39 1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30 1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30 1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30 1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50 1.5421
September	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48 1.5630
October	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25 1.5236
November	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25 1.4769
December	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20 1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.35 1.5182

IRON AND STEEL.

The past seven years have with changes in color somewhat more pronounced than the changes in the depression of the nineties.

When the law judges get to a difficult point in trying to reach a conclusion they frequently ask a question about the alternative. If this money was not paid for this purpose, for what purpose was it paid? If such and such words do not refer to a stated period of time, to what period of time do they refer?

Taking a leaf from their notebook, let us ask: If the past seven years have not constituted a period of business depression, when are we to have the period? We did not have such a period just previous, for 1899 to 1907 inclusive, nine years, consti-

tuted a very prosperous period. The nine years were good in general, broken by brief intervals of bad times. The past years have been bad in general, broken by brief intervals of good times.

The burden of the evidence seems to be that we were about ready for the inauguration of a period of several years of really good times. In many quarters this prediction had been made in precise terms.

On one thing the writer is convinced and he is never happier than when engaged in an attempt to defend the position, that the steel industry of the United States is today undersized for the growth of the country, that the latent demand for steel—simply not expressed in full on account of untoward conditions—has grown more since

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	\$17,994,381	\$34,426,801	\$17,826,973
2nd	20,457,596	41,210,813	25,102,265
3rd	22,276,002	38,450,400	30,063,512
4th	23,036,349	35,185,557	
Year	137,133,363	108,178,307	
	1911.	1910.	1909.
1st	\$23,519,203	\$37,616,876	\$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
1912—	%	%	%	Tons.
January 1913	98	89	— 9	—104,796
February ..	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September .	82	74	—18	—219,683
October ...	87	74	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—370,757
May	62	37	—25	—278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,522
August ...	67	72	+ 5	+ 74,742
September ..	62	94	+28	+25,604
October ...	55	28	—27	—226,570
November ..	45	32	—13	—130,703

IRON AND STEEL.

1907, than the productive capacity has increased. In no employment, not even by reason of the growth of concrete work, has steel received a backset. Numerous new uses have been found, and old uses have expanded. Engineering has advanced so that vastly larger quantities of steel are used on single jobs than formerly. The large construction jobs now take individually several times as large fractions of the steel industry's total output as was the case 15 or 20 years ago. For instance, the Quebec bridge took 70,000 tons of steel or more than 2½% of the maximum finished steel output possible in one year, but 15 years ago no single job was taking as much as one per cent. of the industry's annual capacity.

Whether the past seven years are really to be characterized as a period of depression or not, the fact remains that after the new construction program that was on the boards at the end of 1907 was completed there has been less new construction in steel capacity than in any previous period in the history of the industry. We refer to new construction not in terms of absolute tonnage, of course, but in terms of percentage of growth over existing capacity.

The Three Starts of 1914.

We may now get down to the details. There were three starts in 1914 towards better things: The first was in January, extending into February, with slight price advances, but cutting resumed as soon as the little accumulation of business on mill books began to be worked off. The ensuing decline brought prices to a lower level than before the rise.

The next start began in June, and the going was fairly good in that month and the next, prices rising distinctly though slightly. The inception of the war at the close of July brought some fevered buying, there being some fears that material might become scarce, and prices rose somewhat more. Then the real effect of the war was felt and demand and prices declined steadily. By the beginning of November production was at the lightest rate for years, and it was at the lowest rate, in percentage of existing capacity, that ever obtained in the whole history of the steel market. About the beginning of November senti-

ment, which had been practically hopeless, began to improve, and late in the month actual buying began to improve in spots, while in December the buying was fairly heavy. The improvement was more clearly marked than that of January-February or that of June-July, but in actual extent it was not as great. It was sharply marked simply because the preceding condition had been so unprecedentedly bad.

Influence of the War.

Setting aside entirely for the moment the influence of the war, the course of the market considered by itself shows no evidence of any permanent improvement. We have had three starts, at six-month intervals, and they can be explained simply on the basis that when the mills run absolutely out of orders, and buyers run absolutely out of stock a little get together movement occurs. The same thing might occur every six months for years.

But if the case really was that the war stopped last July's movement from developing into something important the outlook is changed. Many men have lately been studying the effects of war upon the course of business. While this war is greater than all others, the influences are much the same in character. The general opinion of the best observers is that the first and immediate effect of war is blighting, arresting all initiative; that later business is stimulated in some quarters, so that business improves steadily after its first and great backset, and that the payment for the destruction of property and breaking up of the channels of commerce is distributed over a long period of time.

It seems reasonable therefore to construct the theory that the worst has been passed, that the panic in the minds of men and the extreme stringency in money exerted their worst influences late in 1914, centering on the month of October, and that some measure of more or less continuous improvement is to be expected for 1915. If there are backsets, they should not bring the industry to nearly as low points, in the rate of production and in the level of prices, as were reached late in 1914.

A Possible "Boom".

It is precisely in war time that what is popularly called a "boom" can occur, for

IRON AND STEEL,

it is then that men's minds are most ready to accept the unexpected, and a boom, like a panic, must be unexpected or in the nature of things it cannot occur.

In the shadow of the trying times the iron and steel industry passed through in the closing months of 1914 it seems a far cry to a boom in 1915, but there are favorable influences. The definite start was made by the buying movement of December, with price declines arrested in some products and a definite advance of a dollar a ton recorded at the end of the month in bars, plates and shapes. The railroads have received, through second rate decision, December 18th, nearly all they asked and are likely to become relatively free buyers. The grain crops have been large and are realizing high prices. Stocks of material in buyers' hands have been liquidated as never before. They were supposed to be fully liquidated before the extreme financial stringency caused a further and probably uncomfortable reduction.

The question of stocks is a very important one. The replenishment or the liquidation of stocks has usually been the most powerful instrument in chalking out the course of the steel market, whether it was to be upwards or downwards. The fluctuations in the stocks, of course, constitute only the medium through which business conditions and influences work, but in this particular case there has been a particular and special liquidation in stocks of material, through money having been so tight, whereas in the new year it is relatively easy.

An interesting peculiarity in the steel trade may here be noted. In the past the fluctuations have been almost all that could be conceived, but there is one thing that has never occurred. The steel industry has never worked up to a stage of operating at 80% of its capacity without promptly proceeding to operate at full capacity. That is a historic fact, and apart from its being a fact it is something readily susceptible of explanation. When so near an approach is made buyers become fearful of not being able to get material, and promptly fill the mills up. There are distinct possibilities of the industry working up to an 80% operation, and if it does, the market will take the bit in its mouth

and a "boom" will result.

Pig Iron Fluctuations.

There was no important change in the general level of pig iron prices in December. Southern iron declined, while Cleveland showed a decline and Buffalo a further advance. The general movement in pig iron prices is shown by the following compilation of the price of our composite pig iron on the first day of each month, the change that occurred during the month being also shown.

	On first day of month.	Change during month.
January (1913)	17.450	-17.50
February	17.275	-33.0
March	16.945	-32.0
April	16.621	-61.0
May	16.015	-76.5
June	15.250	-55.0
July	14.700	-25.0
August	14.450	-47.5
September	14.625	-15.0
October	14.775	-20.0
November	14.525	-47.5
December	14.050	-50.5
January (1914)	13.545	-12.0
February	13.425	-45.0
March	13.875	-2.5
April	13.85	10.0
May	13.85	-17.5
June	13.675	-12.5
July	13.60	10.0
August	13.50	0.5
September	13.495	12.0
October	13.375	-30.0
November	13.075	0.5
December	13.08	-5.0
January (1915)	13.03	

THE RATE OF PIG IRON PRODUCTION ABROAD.

Pig iron production in Germany has been as follows, in metric tons of 2,204.6 pounds:

Monthly average,

January to June.....	1,548,033
July	1,434,345
August	1,254,027
September	518,184

The greatest decrease was in Belgium and Luxembourg. These districts were producing fully half a million tons a month. There are, in fact, no official returns lately for these districts, but they are estimated to have produced about 10,000 tons in September.

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tember, included in the above total for Germany. The next greatest decrease was in North Germany, from about 85,000 tons a month to 13,000 tons in September. On the other hand, central Germany has made no pig iron at times, but is credited in September with 26,000 tons.

The iron production in Sweden in metric tons has been as follows:

Monthly average,

July to September, 1913..	58,600
July, 1914	53,000
August	44,600
September	42,700
October	41,600

There are no precise returns for Great Britain, but trade reports indicate that there has been but little decrease in pig iron production, say 10 or 15 per cent possibly. Production in the United States increased a trifle in August and in September was only slightly below July, while October production was 9 per cent and November 22 per cent under that of July. German production, on the other hand, has decreased by precisely two-thirds.

NEW PRODUCTION STATISTICS.

Galvanized Sheets—Welded Iron and Steel Pipe—Seamless Tubing—Cast Iron Pipe.

The Bureau of Statistics of the American Iron and Steel Institute has made a very interesting enlargement in its statistical work, having gathered for 1913 the production statistics of galvanized sheets and of all tubular goods, including welded pipe, seamless steel tubing and cast iron pipe.

The sheet galvanizing statistics separate galvanized sheets produced in the flat form, and pressed and stamped ware made from black sheets and afterwards galvanized. The figures for 1913 in pounds and gross tons are as follows:

	Pounds.	Gross tons.
Sheets	1,811,752,565	808,818
Formed products ..	149,327,542	66,664
Total	1,961,080,107	875,482

There were 40 plants engaged in making the first named product and 61 in the case of the second, there being 92 plants altogether, hence nine plants seem to have made both products.

The total production of all black sheets, 13 gauge and lighter, made on jobbing, sheet and tin mills, but excluding all black plate that was actually tinned, was 1,668,664 gross tons, so that about 17 to 48 per cent of the total weight seems to have been galvanized. If blue annealed were excluded, the proportion of regular sheet mill product galvanized would run somewhat about 50 per cent.

Wrought Pipe Production.

The production of wrought pipe in 1913, in gross tons, is reported as follows:

	Iron.	Steel.	Total.
Black standard pipe	120,619	709,853	830,472
Galvanized standard pipe	25,323	241,617	266,940
Total standard pipe	145,942	951,470	1,097,412
Oil country goods	84,778	756,311	841,089
O.D. pipe, etc..	2,159	177,052	179,211
Boiler tubes ...	43,188	84,632	127,820
Total wrought	276,067	1,969,465	2,245,532

Apart from the above is the production of seamless steel tubes, reported as follows in gross tons:

Hot finished	42,740
Cold drawn	65,827
Total seamless	108,567

Cast Iron Pipe.

The production of cast iron pipe and fittings, in net tons of 2,000 pounds, is given below, the output being divided between gas and water pipe as one class and soil pipe and plumbers' pipe on the other:

	Pipe.	Fittings.	Total.
Gas and water..	955,458	46,831	1,002,289
Soil and plumbers'	195,031	68,925	263,956
Total	1,150,489	115,756	1,266,245

WAR EXPORTS OF AUTOMOBILES.

Statistics of exports have become very interesting of late, for in very many cases they reflect war exports quite clearly. In no single item are the statistics more interesting than in that of automobiles. The government classification is of "commercial" and "passenger" automobiles. The so-called "commercial" vehicles have greatly increased, but of course the term is distinctly a misnomer, as the "commercial" vehicles are undoubtedly trucks for war purposes rather than trucks for commercial purposes.

The monthly exports thus far this year are reported as follows:

	Commercial.		Passenger.	
	No.	Value.	No.	Value.
Jan.	45	\$71,491	2,481	\$2,171,392
Feb.	57	83,461	2,837	2,378,494
Mar.	50	63,932	3,338	2,984,915
April	52	72,676	3,239	2,760,478
May	99	127,024	3,157	2,857,601
June	90	120,257	1,982	1,870,882
July	50	106,400	1,265	1,143,419
Aug.	66	124,016	385	441,879
Sept.	128	294,288	646	597,904
Oct.	672	2,286,964	732	678,387

In the seven months before the war trucks averaged 63 in number and \$92,606 in value, per month, the October exports being ten times as many in number and 24 times as much in value. This is a tremendous increase and the much greater increase in value than in number shows clearly that commercial vehicles exported early in the year were for light delivery purposes while the October machines were large, intended for heavy loads and severe service. Comparing October with the first average of the seven months of the year the decrease in pleasure or passenger vehicles is 73 per cent in number and 71 per cent in value.

Lest it be supposed that a part of the change shown in the above figures is due to the season, it is well to mention that the exports in October, 1913, were 79 commercial vehicles valued at \$129,506 and 1,697 passenger vehicles valued at \$1,663,716, or substantially the same proportions as obtained this year before the war.

There is a partial statement of the destination of these exports, but commercial and passenger vehicles have been grouped together. The figures furnish grounds for the conclusion that the great bulk of the trucks in October went to England, France and Germany. There were no direct exports to Germany, but while 108 vehicles valued at \$171,049 are given as destined for France and 415 valued at \$829,982, there is named for "other Europe" 346 valued at \$1,461,191, or \$4,200 apiece. While "Other Europe" includes Russia it is quite improbable that Russia took 50% more than England and France together, and as for the minor neutral countries it is quite certain they are not positioned to buy four thousand dollar trucks or pleasure vehicles at this time, particularly when they were not doing so before the war. The complete absence of any exports declared for Germany is altogether too conspicuous.

CAR BUYING.

Freight cars ordered:

First half 1913	114,000
Second half 1913	33,000
Year 1913	147,000
January, 1914	19,000
February	13,000
March	7,000
April	10,000
May	9,000
June	11,000
July	6,800
August	3,100
September	95
October	1,725
November	550
December	1,150
Year, 1914	78,000

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1913—	Pig iron.	Rails.	Tin Plates.	Total*
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	36,274	396,656
Sept. ..	106,535	26,283	36,572	394,849
Oct. ..	99,598	40,625	40,733	435,534
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,954
Year	1,124,815	500,614	494,921	5,050,919
1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	407,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,593	36,187	23,440	228,992
Oct.	47,188	37,005	26,950	262,844
Nov.	49,666	16,181	50,942	240,047
11 mos.	748,986	419,125	405,214	1,794,861

* Includes scrap, pig iron, rolled steel, cast, and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tanks, etc.

COMPOSITE STEEL.

Computation for January 1, 1915.

Pounds.	Group.	Price.	Extension.
2	Beams	1.10	2.750
1	Plates	1.10	1.650
1	Shapes	1.10	1.650
1	Pipe (34.39)	1.90	2.850
1	Wire rods	1.50	2.250
1	Steeled shapes	1.80	1.800
1	Tin plates	3.10	1.600
44 pounds			14.500

One pound 1.4500

(Averaged from daily quotations.)

	1910	1911	1912	1913	1914
Jan..	1.8925	1.7415	1.5125	1.7137	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8175	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.7742	1.5337
May..	1.8925	1.7510	1.5590	1.7786	1.5078
June..	1.7955	1.6817	1.5594	1.7719	1.4750
July..	1.7755	1.6761	1.6188	1.7660	1.4805
Aug..	1.7750	1.6394	1.6784	1.7400	1.5421
Sept..	1.7470	1.6090	1.7086	1.7093	1.5632
Oct..	1.7350	1.5404	1.7588	1.6779	1.5236
Nov..	1.7395	1.4950	1.7750	1.6203	1.4760
Dec..	1.7380	1.4812	1.7789	1.5578	1.4324
Year..	1.7922	1.6540	1.6214	1.7241	1.5182

SCRAP IRON & STEEL PRICES.Melting Bundled No. 1 R. R. No. 1 No. 1 Heavy
Steel. Sheet. Wrought, Cast, Steel, Melt'g.
Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1912—					
Year	13.76	11.92	14.16	13.28	13.82 12.30
1913—					
May	13.50	10.00	15.00	14.25	12.25 11.50
June	13.20	9.25	14.25	13.50	11.50 10.75
July	12.50	8.75	13.35	12.30	11.15 10.60
Aug.	12.40	8.25	13.25	12.50	11.85 10.75
Sep.	12.60	8.00	13.00	12.50	12.25 10.60
Oct.	12.25	7.40	13.00	12.40	11.20 10.35
Nov.	11.40	6.75	11.85	12.00	10.30 10.25
Dec.	11.00	6.40	11.65	11.60	9.75 9.25
Year	13.07	9.33	13.91	13.29	12.12 11.21
1914—					
Jan.	11.25	7.00	12.20	12.00	10.50 9.25
Feb.	12.00	8.25	12.80	12.50	11.50 10.70
Mar.	12.25	9.00	12.85	12.40	11.50 10.50
Apr.	12.25	9.00	12.00	12.15	10.80 10.00
May	11.75	9.10	11.75	12.25	10.60 10.00
June	11.75	9.10	11.75	12.25	10.50 9.80
July	11.75	8.50	11.75	11.50	10.60 9.75
Aug.	11.50	8.50	11.50	11.25	10.75 9.75
Sep.	11.25	8.70	10.50	11.25	10.75 9.25
Oct.	10.75	8.50	10.25	11.25	10.00 9.00
Nov.	10.10	8.10	10.25	10.75	9.25 8.25
Dec.	10.50	8.50	10.50	11.00	9.65 8.40
Year	11.42	8.52	11.54	11.71	10.53 9.55

COMPOSITE PIG IRON.

Computation for January 1, 1915.

One ton Bessemer, valley	\$13.75
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia ..	14.25
One ton No. 2X foundry, Buffalo ...	13.25
One ton No. 2 foundry, Cleveland ...	13.25
One ton No. 2 foundry, Chicago ...	13.25
Two tons No. 2 Southern foundry,	

Cincinnati (12.40) .. 24.80

Total, ten tons \$130.50

One ton \$13.050

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May..	15.750	14.242	13.917	15.682	13.808
June..	15.320	14.032	14.005	14.968	13.606
July..	15.131	13.926	14.288	14.578	13.520
Aug..	14.727	13.874	14.669	14.565	13.516
Sep...	14.612	13.819	15.386	14.692	13.503
Oct..	14.435	13.692	16.706	14.737	13.267
Nov..	14.415	13.532	17.226	14.282	13.047
Dec..	14.408	13.430	17.475	13.898	13.073
Year..	15.552	14.005	14.823	15.418	13.520

**UNFINISHED STEEL
AND IRON BARS.**

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	Iron bars, heavy Phila. Pitts.	Ch'go.
1913—					
July	26.50	27.50	28.50	1.55	1.65 1.50
Aug.	25.75	26.50*	28.00	1.42	1.62 1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59 1.37
Oct.	22.50	23.25	26.50	1.32	1.54 1.27
Nov.	20.50	21.50	26.00	1.30	1.45 1.15
Dec.	20.00	21.00	25.25	1.25	1.37 1.12
Year	25.55	26.43	28.39	1.51	1.59 1.45
1914—					
Jan.	20.00	20.25*	25.75	1.24	1.35 1.11
Feb.	21.00	22.00	26.00	1.28	1.35 1.14
Mar.	21.00	22.00	26.00	1.28	1.35 1.15
Apr.	20.75	21.75	25.50	1.23	1.31 1.14
May	20.00	21.00	26.00	1.23	1.29 1.10
June	19.50	20.35	25.00	1.23	1.25 1.08
July	19.50	20.00	25.00	1.19	1.25 1.06
Aug.	20.17	21.08	25.25	1.18	1.25 1.07
Sep.	20.75	21.75	26.00	1.18	1.20 1.07
Oct.	20.00	20.70	26.00	1.14	1.20 1.01
Nov.	19.25	19.75	25.00	1.13	1.20 .96
Dec.	18.75	19.25	24.40	1.12	1.20 .91
Year	20.06	20.82	25.50	1.20	1.27 1.07

* Premiums for Bessemer.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1913—

May 27	Pipe	79¼% to 79%
June 2	Wire nails	1.80 to 1.75
" 11	Sheets	2.35 to 2.30
" 18	Sheets	2.30 to 2.25
July 1	Wire nails	1.75 to 1.70
Aug. 9	Pipe (¾-3-in.)	79% to 80%
" 12	Wire nails	1.70 to 1.65
" 21	Sheets	2.25 to 2.15
" 27	Plates	1.45 to 1.40
Sept. 1	Shapes	1.45 to 1.40
" 22	Sheets	2.15 to 2.05
Oct. 2	Tin plates	3.60 to 3.50
" 3	Wire nails	1.65 to 1.60
" 16	Plates	1.40 to 1.35
" 21	Plates	1.35 to 1.30
" 23	Shapes	1.40 to 1.35
" 24	Sheets	2.05 to 2.00
" 27	Pipe	2½% extra discount
" 28	Bars	1.40 to 1.35
Nov. 3	Tin plate	3.50 to 3.40
" 7	Bars	1.35 to 1.30
" 17	Sheets	2.00 to 1.95
" 25	Bars	1.30 to 1.25
" 25	Plates	1.30 to 1.25
" 25	Shapes	1.35 to 1.30
" 28	Wire nails	1.60 to 1.55
Dec. 2	Sheets	1.95 to 1.90
" 3	Shapes	1.30 to 1.25
" 4	Plates	1.25 to 1.20
" 11	Bars	1.25 to 1.20
" 22	Shapes	1.25 to 1.20
Dec. 31	Sheets	1.90 to 1.80

1914—

Jan. 6	Wire nails	1.55 to 1.50
" 7	Sheets	1.80 to 1.85
" 13	Wire nails	1.50 to 1.55
" 21	Sheets	1.85 to 1.90
" 30	Sheets	1.90 to 1.95
Feb. 2	Pipe	80% to 79½%
" 2	Wire nails	1.75 to 1.60
" 4	Shapes	1.20 to 1.25
Mar. 9	Shapes	1.25 to 1.20
" 20	Plates	1.20 to 1.15
April 1	Bars	1.20 to 1.15
" 8	Sheets	1.95 to 1.90
" 17	Shapes	1.20 to 1.15
" 20	Pipe	79¼% to 80%
" 27	Sheets	1.90 to 1.85

1914—

" 29	Tin plates	3.40 to 3.30
May 19	Bars	1.15 to 1.12½
" 22	Wire nails	1.60 to 1.55
" 26	Shapes	1.15 to 1.12½
" 29	Plates	1.12½ to 1.10
" 29	Wire nails	1.55 to 1.50
June 9	Sheets	1.85 to 1.80
" 19	Bars	1.12½ to 1.10
" 19	Shapes	1.12½ to 1.10
July 20	Wire nails	1.50 to 1.55
" 21	Bars	1.10 to 1.15
" 21	Shapes	1.10 to 1.15
" 23	Plates	1.10 to 1.15
" 30	Tin plate	3.30 to 3.35
Aug. 5	Tin plate	3.25 to 3.40
" 6	Sheets	1.80 to 1.85
" 11	Sheets	1.80 to 1.85
" 11	Bars	1.15 to 1.20
" 11	Shapes	1.15 to 1.20
" 14	Tin plate	3.40 to 3.60
" 21	Wire nails	1.55 to 1.60
" 31	Sheets	1.90 to 2.00
Sept 16	Tin plate	3.60 to 3.30
" 26	Sheets	2.00 to 1.95
" 29	Bars	1.20 to 1.15
" 29	plates	1.20 to 1.15
" 30	Tin plate	3.30 to 3.25
Oct. 5	Sheets	1.95 to 2.00
" 7	Shapes	1.20 to 1.15
" 22	Sheets	1.90 to 1.90
" 27	Plates	1.15 to 1.10
Nov. 2	Pipe (extra 2" removed)	80% to 81%
" 5	Bars	1.15 to 1.10
" 5	Shapes	1.15 to 1.10
" 18	Sheets	1.90 to 1.85
" 24	Plates	1.10 to 1.05
" 24	Wire nails	1.60 to 1.55
Dec. 1	Bars	1.10 to 1.05
" 1	Shapes	1.10 to 1.05
" 5	Tin plate	3.25 to 3.20
" 4	Wire nails	1.55 to 1.50
" 28	Tin plate	3.20 to 3.10
" 30	Shapes	1.85 to 1.80
1915—		
Jan. 1	Bars	1.05 to 1.00
" 1	Plates	1.05 to 1.10
" 1	Shapes	1.15 to 1.10

COPPER.

COPPER IN 1914.

The events in the copper market during the first seven months of 1914 can be dismissed with scant notice as they lost all interest in comparison with what has happened since the war started.

Starting on January 1st with stocks of 91,438,867 lbs. and with a good export trade and an indifferent domestic demand, we went for three months, in which the total deliveries exceeded the production by 27,000,000 lbs., while in the second quarter the production exceeded deliveries by 42,000,000 lbs., leaving the producers on June 30th with 15,000,000 lbs. more copper on hand than they had at the beginning of the year. The deliveries from January to June were very unequally divided, the exports amounting to 489,822,739 lbs. or 60% of the total, and the domestic deliveries to only 330,643,117 lbs., these latter being the smallest since the first half of 1909. There was considerable comment at the time concerning the disposition of the very large amount of copper that was being sent to Europe, and particularly to Germany, which in spite of reports of slack trade conditions on the other side no sooner arrived in the country but what it disappeared. There were claims that the metal was not all being consumed, but was being hidden away, and in the light of subsequent developments it is not unlikely, that in the case of Germany at least, provision was being made for the future. But nobody in this country in May or June had any suspicion of what was going to take place, and the exhibition of the largest export trade on record in contrast to the smallest domestic consumption since 1908 was a conundrum which the trade could not solve.

The market fluctuations during the first four months were of no special importance. In January the market opened at 14.75, declined to 14.12½ and advanced again to 14.75; in February there was a gradual decline to 14.50; in March the price went to 14.12½ and then up to 14.50; in April down again to 14.10 and in May it stayed close to 14.12½ all through the month. But commencing with June the market began to show unmistakable signs of weakness, resulting chiefly from the stagnation in general business, and in part to the increase

in surplus stocks, and the producers bowed to what seemed to be the logic of the situation and reduced their price by degrees to 13½ but without stimulating much buying interest on the part of consumers.

In July however, there was a fair amount of buying and the market was steady until towards the close of the third week when the danger of the European situation commenced to be realized. That last week in July was probably the most exciting that the present generation in the metal trade will ever experience, and it culminated with Germany's declaration of war on August 1st. The London Metal Exchange was closed on July 31st to remain closed for more than three months. The New York Metal Exchange was also closed but as no trading in standard copper is done in this market the local exchange has no direct connection with copper. Nearly all business stopped but on offers to sell the market declined to 12¾ on July 31st.

Copper more than any other metal we produce, more than any other commodity for that matter except cotton, was adversely affected by the war, because 60% of our trade was with Europe and 60% or more of our export trade was with Germany and Austria. In June and July the production was about 25,000,000 lbs. per month in excess of the deliveries but until the war commenced there had been no movement to curtail the output.

The producers met the situation by a general curtailment, of 50% on the part of Anaconda and some of the other large mines, and 25% to 33% by others, while many of small producers suspended operations altogether. The producers also suspended the publication of their monthly statistics so that since the figures for June were issued the public have been given no information concerning the monthly output, deliveries or stocks of copper. The rumor is that these statistics will never be resumed but that is a matter that can be discussed on some other occasion.

Another precautionary measure was the suspension of the quotations used by many of the smelters and refiners in the settlement of sliding scale contracts, which automatically had the effect of forcing certain producers to stop their operations and shipments. Our own publication the "American

COPPER.

Metal Market" continued to report and quote the market each day so the record of price fluctuations during the eventful months of August, September and October is complete.

The market in August declined to 12.25c @ 12.35c but business was almost at a standstill throughout the month except for a few hand-to-mouth purchases by consumers. The producers both during this month and the one following had no fixed prices and each individual order was treated privately. They knew that no large business could be done at any price and they endeavored to keep the market as quiet and inconspicuous as possible.

In September the price dropped off another 1/2c per pound to 11 1/2c and the sales this month were a trifle larger than in August, including various tonnages for export. England having declared copper a conditional contraband of war, commenced in September to seize copper cargoes consigned to Holland but actually destined to Germany. This resulted in Holland placing an embargo on copper which meant a complete stoppage of exports to Holland, and as Holland uses but little over 1,000 tons a year there is not likely to be any market for American copper in that country until the war ends. When the shipments to Holland were stopped it was noticed that there was simultaneously a heavy increase in the shipments to Italy and Scandinavia. England evidently suspected that these were also intended for Germany, the quantities being much larger than the countries in question were known to consume, and she also stopped the greater part of these. Altogether England seized more than 50,000,000 pounds that was shipped to neutral countries, some of which she bought and paid for and the remainder is still being held subject to the decisions of the prize courts. Things looked pretty bad for the copper market in October and the price declined to 11 1/8c on forced selling by outsiders and smaller producing interests. The domestic consumers seemed to be convinced that the market was going to 11c and intimated that

COPPER PRICES IN DECEMBER.

	— New York —			London,	
	Lake. Cents.	Electro. Cents.	Casting. Cents.	Standard (Prompt).	£ s d
1	12.90	12.65	12.55	55 15 0	
2	13.06 1/4	12.80	12.70	56 2 6	
3	13.06 1/4	12.80	12.75	56 10 0	
4	13.06 1/4	12.80	12.75	56 7 6	
5 ....	.....	.....	.....	.....
6 ....	.....	.....	.....	.....
7	12.93 3/4	12.75	12.70	55 10 0	
8	12.93 3/4	12.75	12.70	55 7 6	
9	12.93 3/4	12.75	12.70	56 5 0	
10	12.93 3/4	12.80	12.70	56 12 6	
11	13.25	13.00	12.87 1/2	57 12 6	
12 ....	.....	.....	.....	.....
13 ....	.....	.....	.....	.....
14	13.37 1/2	13.18 3/4	13.06 1/4	58 5 0	
15	13.50	13.25	13.15	58 7 6	
16	13.50	13.25	13.15	57 15 0	
17	13.50	13.25	13.15	57 15 0	
18	13.37 1/2	13.15	13.05	57 10 0	
19 ....	.....	.....	.....	.....
20 ....	.....	.....	.....	.....
21	13.25	13.05	12.93 3/4	57 7 6	
22	13.20	12.95	12.85	57 0 0	
23	13.15	12.90	12.80	57 0 0	
24	13.15	12.90	12.80	56 15 0	
25 ....	.....	.....	.....	.....
26 ....	.....	.....	.....	.....
27 ....	.....	.....	.....	.....
28	13.15	12.90	12.80	56 12 6	
29	13.10	12.85	12.75	56 15 0	
30	13.10	12.85	12.75	56 12 6	
31	13.06 1/4	12.80	12.70	56 12 6	
High ..	13.62 1/2	13.30	13.20	58 7 6	
Low ..	12.80	12.60	12.50	55 7 6	
Average	13.159	12.927	12.835	56 16 10	

The Waterbury averages for the month of December, 1914, were as follows:

Lake Ingot Copper 13.50

Brass Mill Spelter 5.90

Yearly Averages.

Lake Copper. Brass Spelter.

1907	21.17 1/2	6.36
1908	13.54	5.02
1909	13.41 1/2	5.80
1910	13.13 1/2	5.97
1911	12.75	6.16
1912	16.71	7.33
1913	15.83	6.06
1914	13.91	5.53
Average 8 years	15.06	6.01

COPPER.

when it reached that point they would be willing to buy on the liberal scale. But as it turned out the market never reached 11c for beginning in the second week in November a buying movement was started by one of the large English houses which spread rapidly over the whole market and which brought in the American buyers with a rush and prices started right away to improve. On November 30th the market had advanced to 12.60.

The market then experienced a sharp diminution in the demand. Consumers had overstayed their market and were being forced to take warning of the re-establishment on November 20th of the export restrictions to settle contracts between the mines and the smelters and refiners, which was a quiet hint that the curtailment of the output had been completed, and that the smelting and refining and selling interests were willing to do business on the liberal scale. This was the reason why these quotations were suspended for three months, but it should have been perfectly obvious all why they were as new.

The market continued to advance during the last half of December, reaching 12.50 on the 15th, then the buying having spent itself there was a reaction to a little under 12c. The quotation on the last day of the year was 12.85, although some of the producers had not recognized the decline in the outside market or in London and were still holding out for a demand quotation of 13 $\frac{1}{2}$ c delivered. The market in the closing six weeks gained all that it had lost in the preceding three months and notwithstanding the unsatisfactory export situation was in a fairly strong condition.

What the outcome is going to be in controversy concerning the export of copper to neutral countries nobody can tell, but it seems certain that the German and Austrian trade which was 60 per cent of our entire export trade, will be lost until the end of the war. There may be a gain with some of the neutral countries and a gain in trade with the Allies has already taken place, but if our exports in the next six months average no more than what they were during the last six months of 1914 we will be doing well.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37 $\frac{1}{2}$	16.89	14.76 $\frac{1}{2}$
Feb.	13.76 $\frac{1}{2}$	12.73	14.38 $\frac{1}{2}$	15.37 $\frac{1}{2}$	14.98
Mar.	13.71	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	14.44
June	12.83 $\frac{1}{2}$	12.63	17.43	15.08	14.15
July	12.62 $\frac{1}{2}$	12.72	17.37	14.77	13.73
Aug.	12.78	12.70	17.61	15.79	12.68
Sept.	12.72	12.57	17.69	16.72	12.44
Oct.	12.90	12.47 $\frac{1}{2}$	17.69	16.81	11.66
Nov.	13.00	12.84	17.66	15.90	11.93
Dec.	12.92	12.70	17.62	14.82	13.16
Av.	13.12	12.71	16.58	15.70	13.61

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75 $\frac{1}{2}$	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42	12.31	14.78	14.92 $\frac{1}{2}$	14.33 $\frac{1}{2}$
April	13.35	12.15	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	14.13
June	12.59	12.55	17.29	14.85	13.81
July	12.36 $\frac{1}{2}$	12.62 $\frac{1}{2}$	17.35	14.57	13.49
Aug.	12.56	12.57	17.60	15.68	12.41 $\frac{1}{2}$
Sept.	12.49	12.39	17.67	16.55	12.09
Oct.	12.77	12.36	17.60	16.54	11.40
Nov.	12.87	12.77	17.49	15.47	11.74
Dec.	12.72	12.71	17.59	14.47	12.93
Av.	12.88	12.55	16.48	15.52	13.31 $\frac{1}{2}$

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27 $\frac{1}{2}$
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72 $\frac{1}{2}$	15.33	14.18
May	12.62	12.08	16.01	15.45 $\frac{1}{2}$	14.00
June	12.52	12.40	17.08	14.72	13.65
July	12.30	12.49 $\frac{1}{2}$	17.09	14.40 $\frac{1}{2}$	13.34 $\frac{1}{2}$
Aug.	12.48	12.42	17.35	15.50	12.27
Sept.	12.46	12.23	17.51	16.37 $\frac{1}{2}$	12.00
Oct.	12.70	12.21	17.44	16.33	11.29
Nov.	12.82	12.61	17.34	15.19	11.63
Dec.	12.64	12.56	17.34	14.22	12.83 $\frac{1}{2}$
Av.	12.81	12.42	16.29	15.41	13.18

COPPER.

PRODUCTION OF COPPER IN 1914.

The copper production of the United States in 1914 will show a marked decrease from that of 1913, according to figures and estimates collected by B. S. Butler, of the United States Geological Survey. Reports have been received from all plants known to produce blister copper from domestic ores and refined copper. At an average price of about 13.5 cents a pound, the 1914 output has a value of \$152,400,000, compared with \$189,795,000 for the 1913 output. The large decrease in production in 1914 was due to curtailment of production during the later part of the year on account of the reduction in tonnage exported to Europe.

Smelter Production.

The figures showing smelter production from domestic ores represent the actual production of most of the companies for 11 months and an estimate of the December output. The November figures for a few companies were not available, and these companies furnished estimates for the last two months of the year. According to the statistics and estimates received, the output of blister and Lake copper was 1,129,000,000 pounds in 1914, against 1,224,484,000 pounds in 1913.

Refined Copper.

The statistics and estimates indicate that the output of refined copper from primary sources, domestic and foreign, for 1914 was 1,493,000,000 pounds, compared with 1,615,067,000 pounds in 1913.

Imports.

According to the Bureau of Foreign and Domestic Commerce, the imports of pigs, ingots, bars, etc., for the first 11 months of 1914 amounted to 187,433,676 pounds, and the copper contents of ore matte and regulus amounted to 97,348,866 pounds, a total import of 284,782,542 pounds. This compares with an import for the 12 months of 1913 of 409,560,954 pounds.

Exports.

The exports of pigs, ingots, bars, plates, sheets, etc., for the first 11 months of 1914, as determined by the Bureau of Foreign and Domestic Commerce, amounted to 780,048,777 pounds, compared with an export for the 12 months of 1913 of 926,441,142 pounds.

Domestic Consumption.

At the beginning of 1914 there was about 90,000,000 pounds of refined copper in stock

in the United States. This added to the refinery production for 1914 of 1,106,000,000 pounds of about 1,583,000,000 pounds of refined copper. On subtracting the export from this, with an estimate for December, it is apparent that the supply available for domestic consumption is amply above the 12,000,000 pounds of 1913, without taking account of stock held at the close of the year.

Prices.

The average price of copper for 1914 showed a decrease from that of the preceding year, being about 13.5 cents a pound, compared with 15.5 cents in 1913. After the outbreak of the European war copper sold considerably below the yearly average, but toward the close of the year the price showed notable improvement.

Leading Copper-Producing States.

Arizona continued in first place among the copper-producing States, but had a notably decreased output. The blister-copper production for 1914 will probably not exceed 380,000,000 pounds, compared with 404,000,000 pounds for 1913.

The production from Montana was the smallest for many years and probably did not greatly exceed the production of 1898, which was 206,000,000 pounds, the smallest output made by the State since 1895. In 1913 Montana produced 285,700,000 pounds.

Michigan, with a production of about 160,000,000 pounds made a slight gain over the 155,700,000 pounds produced in 1913, but was still much below the normal output for the State.

Utah will show but little change from the 148,000,000 pounds produced in 1913.

The production from Nevada decreased from the 85,200,000 pounds in 1913, and probably will not greatly exceed 60,000,000 pounds for 1914.

New Mexico made an increased production of probably about 10,000,000 pounds over the output of 50,180,000 pounds in 1913.

California will show a decrease of several million pounds from the production of 32,492,000 pounds in 1913.

The production from Alaska will show but slight decrease from the 23,423,000 pounds produced in 1913. The output for 1914 is estimated at 20,850,000 pounds.

The production from Tennessee decreased somewhat from 19,489,000 pounds produced in 1913.

TIN.

TIN IN 1914.

The year opened at 36.80c with the European syndicate still believed to be operating, and on a good American demand in January, the best that had been experienced in months, the market advanced until 41c was reached early in February. From that point there was a falling off in consumers purchases and the enthusiasm with which the year opened began to melt away as it was seen that general business was moving only slowly, and market was down to 38c by end of February. Market was steady in March at an average price of about 38c, but declined steadily in April to 34.35c, in May to 31.55c, June to 30½c. In July the market began to show an improving tendency but later declined to 31c on July 30th on the panic in the Stock Exchanges caused by the impending war. The next day the market jumped to 33½c. In the next five days in the wildest excitement caused by outbreak of war and fear on the part of consumers that supplies from abroad might be cut off, price doubled to 65c on very little business. Later it developed that shipments would come forward from England and by the end of August the price was down to 38½c.

During the excitement all trading in wholesale lots or for future deliveries was suspended, and the market was made by the small spot purchases of very nervous consumers. The difficulties at that time were summed up in our issue of September as follows:

1. "The question of Finance—it would be by no means an easy job in the present state of affairs to find many firms among those interested in metals, who would care to deplete the balance at their banks in order to pay for and ship 50 or 100 tons of tin. You must understand this is not a question of solvency, but originates in the abnormal banking difficulties, arising from the moratorium. In most cases remittances from the other side would have to reach them in advance, and we understand in your present state of exchange this would of necessity be a costly matter.

2. The difficulty of obtaining 50 or 100 tons of actual tin during the present state of moratorium in metals.

3. The fact that, before they can obtain permission to ship tin to America, it is necessary for the shippers to sign a bond forfeiting to the Government three times the value of the tin, should it be landed at any other port than that originally on the permit. Such a necessity, though by no means probable, might easily arise."

In September the market declined rapidly and from opening at 38c had reached 31c by the end of the month, the cause being good shipments from London and the fears that England would not be able to control the seas having entirely disappeared. Also the demoralization and sensationally high prices in August it was seen had completely disorganized the trade and seriously affected consumption.

In October the market was very quiet, consumers showing very little interest, and there was a steady decline until 28½c was reached in the middle of the month, the feature at that time being apparently liquidation from London. The low price, however, attracted consumers, and the market improved until 29c was reached on the 20th. At that time the trade was startled with news that steamer "Trolius" en route from London to Singapore carrying 975 tons had been sunk by the German cruiser "Emden". The market within the next two days advanced 2½c on comparatively little buying. But part of this advance was later lost, and the market closes for the month at 30½c for spot.

November opened with tin at 32c and an excited market on the news of Turkey's entry into the war, and fears of the Suez Canal being endangered, and on heavy purchases, combined with enquiries from Europe, the market jumped on November 4th to 33½c. A contributory cause for the advance was the favorable monthly statistics showing a decrease in the visible supply during October of some 3500 tons, caused by the sinking of the "Trolius" by the "Emden" with nearly 1000 tons, London deliveries of 1700 tons larger than previous months and smaller Straits shipments. Also the Dutch Government at this time withdrew their auction sale of 2,500 tons. On November 9th both the New York and

TIN.

London Metal Exchanges, which had been closed since the end of July, were reopened, and on the following day spot was up to 34½c here and at 150 10s in London. But buyers becoming shy and more willingness being shown to sell futures the market began to decline and by the 19th had reached 32¼. At this point, attracted by the lower prices, a good demand set in from consumers especially for futures. The demand for spot disclosed a great scarcity and disinclination to sell, and the market in a few days was up again to 34½, the month closing at 33¼.

In December spot trade was extremely dull and deliveries proved to be the smallest for any month since the panic of 1907, but the larger consumers showed confidence in the future, and were good buyers for deliveries for first quarter of the year.

Ever since the outbreak of war spots have commanded a premium of 1c per lb. or more over futures. The year closed with spot at 32.80c, the fluctuation for the year being, opening 36.80; highest 65c, lowest 28½c; closing 32.80c; 35% average.

Regarding the prospects for 1915, as U. S. has in recent years consumed an average of about 45,000 tons per annum, while producing none of this absolutely essential metal to hundreds of our industries, and for which there is no substitute, it can be seen at a glance how dependent we are on conditions that we cannot control, namely, production and transportation, and this is a hundred fold increased by the fact that both these conditions are in the hands of one of the nations at war, England, whose fortunes are in the melting pot. It is true that the Dutch Government produced some 15,000 tons of Banka Tin per annum, and that Bolivia also produced last year nearly 25,000 tons, but since the war in the case of the former the stocks held at Rotterdam and the new production has been held up by the Dutch Government. This tin has in the past been the main supply of Germany and the Continent, and whether from political or other motives, the Dutch Government who own the stocks at Rotterdam and mine the output at Island of Banka, have refused to sell, which of course they have a perfect right to do. **These stocks are accumulating, and some day must be reckoned with.** They do not appear in the

public statistics, and the quantity held and accumulating is not known. In the case of Bolivia the large output there is in the shape of concentrates which in the past have been smelted in Germany and England. Germany being entirely cut off, England is Bolivia's only market. There are no smelting facilities now available other than the moderate ones that exist in England, and of course the East Indies, and while the war lasts the tin the world will get from present prospects from Bolivia will be negligible. At present the industry there is in a state of collapse. There is, however, a chance that should prices rise con-

TIN PRICES IN DECEMBER.

	New York Cents	London		Futures.
		Prompts £ s d		£ s d
1	33.25	144 5 0		143 0 0
2	33.25	144 10 0		142 15 0
3	33.50	147 10 0		145 15 0
4	33.80	149 10 0		147 10 0
5	....	....		....
6	....	....		....
7	33.25	147 10 0		145 10 0
8	32.75	146 5 0		144 15 0
9	32.62	146 0 0		144 10 0
10	32.75	146 0 0		145 0 0
11	33.50	147 0 0		146 0 0
12	....	....		....
13	....	....		....
14	34.75	150 10 0		149 10 0
15	34.75	149 5 0		148 15 0
16	34.75	149 5 0		148 0 0
17	34.50	148 0 0		146 10 0
18	34.25	147 0 0		145 15 0
19	....	....		....
20	....	....		....
21	34.75	145 5 0		144 0 0
22	34.50	144 0 0		142 5 0
23	33.25	144 5 0		142 10 0
24	33.75	148 0 0		145 0 0
25	....	....		....
26	....	....		....
27	....	....		....
28	33.75	148 10 0		145 15 0
29	33.50	148 10 0		146 0 0
30	33.25	147 15 0		144 15 0
31	32.80	146 5 0		142 0 0
High	34.75	150 10 0		149 10 0
Low	32.62	144 0 0		142 0 0
Average	33.60	147 0 11		145 4 1

TIN.

siderably. Bolivian concentrates might be shipped to Singapore and Penang and smelted there, and come to market as straits tin.

At the beginning of the war the East Indies that produced last year about 62,500 tons collapsed financially, but the English Government offered to finance the mines, the situation was restored and output is rapidly being restored to normal, in fact, is probably normal today. The statistics show that in spite of interrupted world's supply the visible supply of tin is 13,396 tons, or only 500 tons more than same time a year ago, and in addition must be remembered the large stocks of Banka held by Dutch Government and consumption in the U. S. has shown a falling off last year and has completely collapsed on the Continent. There are no signs of any great improvement in consumption in any direction. Therefore to sum up there is no reason to doubt that there will be enough tin to meet our requirements, and the whole question rests on transportation. With England maintaining the control of the seas, and no enemy able to intercept her commerce, normal conditions are certain, but in the case of naval disasters by which her ene-

mies could intercept her commerce or blockade her ports, what would happen can be imagined. A disaster to the U. S. would follow. In the case of tin our industries using this metal would have to stop. There is no substitute to take its place and not a month's supply is ever carried in this country and very seldom more than this in London. What will happen should the war end would be an enormous demand from Germany where the metal is selling account scarcity at extremely high prices, also there would undoubtedly be a wave of bull speculation and tin would be one of the favorite counters, but unless something like this takes place speculation in tin is likely to remain for a long while only convalescent after the elimination and shake up of last August and the cutting off the Continental speculators who have in the past been the mainstay of the London speculative movements.

SHEET COPPER PRICE CHANGES.

The base prices of sheet copper for the past year are given in following table together with the price of lake copper on the same dates.

1914—	Sheet Copper.	Lake Copper.
January 1	20.25	15.37½
February 2	20.00	15.12½
March 13	19.75	14.50
May 13	19.50	14.43¾
May 22	19.25	14.43¾
June 15	19.00	14.18¾
July 27	18.50	13.43¾
August 18	18.00	12.56¼
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19	17.00	12.25
November 23	17.50	12.62½
December 1	18.00	12.90
December 15	18.50	13.50

The extreme fluctuations in sheet copper prices for the past six years are given below:

	High.	Low.
1909	19.00	16.50
1910	19.00	16.65
1911	19.00	16.00
1912	23.00	19.00
1913	23.00	19.75
1914	20.25	16.50

COMPOSITE METAL PRICES.

Computation for January 1, 1915:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	5.55	13.875
4	Lead (St. Louis)	3.62	14.500
3	Copper (Electro)	12.85	38.550
1	Tin (New York)	33.25	16.625
10 pounds			83.550
One pound			8.3550

Monthly averages:

	1910.	1911.	1912.	1913.	1914
Jan.	9.084	8.908	9.778	10.987	9.105
Feb.	8.881	8.915	9.677	10.260	9.294
Mar.	8.778	8.797	9.886	10.024	9.026
April	8.568	8.795	10.277	10.198	8.844
May	8.413	8.795	10.468	10.163	8.668
June	8.362	9.154	11.014	9.648	8.431
July	8.338	9.100	11.043	9.398	8.345
Aug.	8.479	9.188	11.092	10.025	9.111
Sept.	8.569	8.928	11.575	10.350	8.067
Oct.	8.747	8.990	11.596	10.020	7.500
Nov.	8.883	9.306	11.372	9.590	7.873
Dec.	8.881	9.675	11.219	9.053	8.400
Year	8.665	9.046	10.750	9.977	8.555

TIN.

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1910.	1911.	1912.	1913.	1914.
Jan...	23,024	18,616	16,707	13,971	16,244
Feb...	21,288	17,260	14,996	12,304	17,308
Mar...	20,203	16,682	15,694	11,132	16,989
Apr...	17,932	14,441	11,893	9,822	15,447
May...	18,998	15,938	14,345	13,710	17,862
June...	15,700	16,605	12,920	11,101	16,027
July...	17,433	16,707	13,346	12,063	14,167
Aug...	17,943	16,619	11,285	11,261	14,452
Sept...	18,999	16,672	13,245	12,943	14,613
Oct...	18,183	14,161	10,733	11,857	10,894
Nov...	18,875	16,630	12,348	14,470	11,483
Dec...	17,194	16,514	10,977	13,893	13,396
Average	18,815	16,404	13,207	12,377	14,907

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	5,870
July	5,644	5,040	4,660	4,580	4,770	4,975
Aug.	4,702	5,700	4,680	5,210	5,990	3,315
Sep.	5,081	4,220	5,150	5,430	5,160	4,973
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av.	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	4,904	4,025	3,140	4,290	4,400	4,350
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	5,000	2,900	2,850	3,800	3,650
July	3,600	3,800	4,300	5,150	3,900	3,900
Aug.	3,300	3,700	3,800	4,200	3,600	2,900
Sep.	3,200	3,300	4,200	3,600	3,100	3,600
Oct.	4,100	3,350	3,500	3,850	3,700	3,700
Nov.	4,000	3,800	3,100	4,300	2,800	2,600
Dec.	3,200	3,600	3,700	4,050	3,100	1,900
	41,500	45,350	41,300	49,500	43,900	41,700
Av.	3,458	3,779	3,692	4,125	3,658	3,475

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Dec. 1914.	Nov. 1914.	Dec. 1913.
Straits shipments	3,715	3,729	3,600
To Gr. Britain..	100	250	384
" U. S.	2,320	1,185	975
Total from Straits	6,435	5,155	5,205
Australian shipments:			
To Gr. Britain..	nil	nil	500
" U. S.	nil	nil	nil
Total Australian	nil	nil	500
Consumption			
London deliveries	2,164	2,121	1,564
Holland deliveries	58	182	1,525
United States	1,900	2,600	3,100
Total	4,122	4,903	5,989
Stocks at close of month:			
In London—			
Straits, Australian	3,009	1,340	2,275
Other kinds	561	1,192	7
In Holland	nil	nil	962
In United States	1,486	2,926	2,190
Total	4,926	4,558	6,384
At close of month:			
To London	4,345	1,970	5,211
" Holland	nil	nil	183
" U. S.	4,125	1,955	3,115
Total	8,470	6,925	7,509
	1914.	1914.	1913.
Total visible supply	Dec. 31, 14,396	Nov. 30, 14,483	Dec. 31, 13,893

* Exclusive of Pacific ports.

† Not reported.

TIN AND SILVER. (Monthly Averages.)

	Tin			Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61.64	57.50†
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	30.65	61.29	58.99	56.47
July	44.75	40.39	31.75	60.66	58.72	54.68
Aug.	44.75	41.72	50.59†	61.61	59.29	54.34
Sep.	43.18	42.47	32.79	63.08	60.64	53.29
Oct.	50.11	40.50	30.39†	63.47	60.79	50.65
Nov.	43.90	39.81	35.50	62.79	58.99	49.10
Dec.	43.99	47.64	41.60	63.37	57.76	49.28
Year	46.44	44.32	37.10	60.8	59.70	54.81

SPELTER.

SPELTER IN 1914.

At the beginning of 1914 the spelter industry was in an unsettled condition, following a year of declining values and increasing stocks, and the market opened at 5.12½ E. St. Louis or 2c per lb. lower than it was the year before. The stocks of 40,659 tons were so unduly large that the market would then and there have probably undergone a further reaction had it not been for the temporary improvement in business sentiment which took place in January. This induced larger buying on the part of consumers and for a while the market advanced and stayed around 5.25 to 5.37½, but later on when it was seen that the business of the country was not responding to the hopeful expectations the market drifted back again and by the end of April the price was 4¾c. May was a dull and uninteresting month and likewise June and July and the extreme fluctuation during these three months was 20 points with an average for the period of 4.90c. The mid-year statistics which were published early in August showed that the situation had become worse during the half year, and that despite an apparent increase in domestic consumption of 17,000 tons the stocks of spelter at smelters had increased another 24,000 tons to 64,039 tons on June 30th. The most surprising feature was that the domestic production was actually a few hundred tons larger than any other half year, showing how reluctant the smelters were to curtail operations, even although prices were around 5.00c and although it was evident to all that the supply exceeded the demand and that the surplus was becoming unwieldy. As mentioned above the statistics indicated that the domestic consumption in the first half of 1914 was 17,000 tons greater than in the second half of 1913, but the known conditions in the metal and iron and steel trades testify to the contrary. The consumers may have taken more spelter but actual consumption was no larger, if as large, but in the one case they were drawing on their own surplus stocks and in the other they were adding to them.

The full effect of these statistics was not felt in the market because of the new factors injected into the situation by the out-

break of the European war. The war had not been going a week before the trade realized the market possibilities of the cutting off of the Belgium and German spelter supplies from the rest of the world, and in a crazy market the price advanced at the rate of about ¼c a day, touching 6.15 E. St. Louis in the third week in August. The advance was out of all proportion to the amount of business done, which was composed principally of orders from England and speculative operations by dealers, while the domestic consumers stood one side and took no part in what was going on. So when the English buying stopped, as it did

SPELTER AND LEAD PRICES IN DECEMBER.

	Spelter				Lead			
	N. Y.	St. L.	London.		N. Y.	St. L.	London	
	Cts.	Cts.	£ s d		Cts.	Cts.	£ s d	
1.	5.40	5.22½	26 2 6		3.82½	3.70	19 2 6	
2	5.50	5.30	26 5 0		3.82½	3.70	19 0 0	
3	5.55	5.37½	26 5 0		3.82½	3.70	19 0 0	
4	5.65	5.50	27 0 0		3.82½	3.70	19 0 0	
5								
6								
7	5.70	5.52½	27 10 0		3.82½	3.70	19 0 0	
8	5.70	5.52½	27 10 0		3.80	3.70	19 0 0	
9	5.70	5.52½	27 17 6		3.80	3.70	19 0 0	
10	5.75	5.57½	28 5 0		3.80	3.70	19 5 0	
11	5.75	5.57½	28 5 0		3.80	3.68½	19 5 0	
12								
13								
14	5.80	5.62½	28 5 0		3.80	3.68½	19 5 0	
15	5.80	5.62½	28 5 0		3.80	3.67½	19 5 0	
16	5.75	5.60	28 0 0		3.80	3.67½	19 2 6	
17	5.75	5.57½	27 12 6		3.80	3.67½	19 0 0	
18	5.70	5.52½	27 10 0		3.80	3.67½	19 0 0	
19								
20								
21	5.65	5.50	27 7 6		3.80	3.67½	19 2 6	
22	5.65	5.45	27 2 6		3.80	3.65	19 5 0	
23	5.65	5.45	27 0 0		3.80	3.65	19 5 0	
24	5.65	5.45	26 17 6		3.80	3.62½	19 2 6	
25								
26								
27								
28	5.65	5.45	26 12 6		3.80	3.62½	19 0 0	
29	5.60	5.42½	27 5 0		3.80	3.63½	19 0 0	
30	5.65	5.47½	27 10 0		3.80	3.63½	19 2 6	
31	5.70	5.50	27 15 0		3.80	3.63½	19 0 0	
High	5.85	5.65	28 5 0		3.85	3.70	19 5 0	
Low	5.35	5.20	26 2 6		3.80	3.60	19 0 0	
Av'ge	5.67	5.49	27 7 4		3.80	3.67	19 1 11	

SPELTER.

at the end of August, the market had nothing to fall back on and the price declined all during September and the first half of October, reaching the lowest level of the year, 4.60c, on October 15th.

The closing down of Butte and Superior helped to check the decline and the re-appearance of England and Russia as buyers enabled the market to work up to 5.62½ by the middle of December. At no time during the second half of the year were the American consumers conspicuously large buyers but the largest tonnages were taken at the end of July when the market broke 5.00c and during November on a scale up from 4.75c to 5.25c.

For reasons not fully known the government's preliminary statistics for 1914 are not going to be published, but on the other hand the producers appear to have made complete returns to the "Engineering and Mining Journal." According to this authority the production of spelter in 1914 was 360,689 tons which is an increase of 2,427 tons over their estimate for 1913 and an increase of 14,013 tons over the government figures of the production in 1913. The stocks at the close of the year are said by the "Engineering and Mining Journal" to be about 23,500 tons, which if correct means that the domestic deliveries during the second half of the year were not only larger than in the first half but were, with one exception, the largest on record, viz.:

	Tons
Stocks June 30, 1914	64,000
Production year 1914	360,689
" Jan.-June, 1914	175,038
" July-Dec., 1914	185,651
Total supply	249,670
Exports July-Dec.	60,000
Stocks, Dec. 31	23,500
Total withdrawn	83,500
Apparent consumption	166,170

The apparent consumption for previous half years compares with this as follows:

1914 July-Dec.	166,170
" Jan.-June	149,363
1913 July-Dec.	132,387
" Jan.-June	153,073
1912 July-Dec.	181,295
" Jan.-June	159,046
1911 July-Dec.	145,157
" Jan.-June	134,902

Considering that the iron and steel industry was running on a 50% basis during the last six months, and the brass industry not over 60%, and as the increase in the sheet zinc trade was entirely for export and therefore appeared in the 60,000 tons exported, it is not reasonable to suppose that the statistics tell the true story. If consumers had been large buyers it might be said that the deliveries of 166,000 tons represented a replacement of stocks, but according to all accounts they were not liberal buyers, and certainly there are very few consumers who actually consumed as much spelter in the last six months as they did in any other half year since 1910.

The large exports of spelter did not commence until September so the stocks on August 31 were as large if not larger than the 64,000 tons reported on June 30th. Who can believe therefore that with absolutely rotten trade conditions at home and admittedly the largest output on record the stocks could decline 40,000 tons in four months. What probably happened is that quantities of spelter have been moved from the works to St. Louis and New York and other convenient shipping points for domestic or foreign trade. It is to be hoped that that is the case because the American consumers will certainly need more spelter this year than they did last, and with an export demand of 8,000 to 10,000 tons a month practically assured during the continuance of the war, an acute scarcity of supplies is likely to develop if the figures published above are correct. Fortunately

SPELTER (Monthly Averages.)

	—New York—			—St. Louis—		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.35	6.40	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	5.16	6.71	5.31	4.96
June	7.05	5.23	5.12	6.87	5.05	4.93
July	7.23	5.41	5.07	7.04	5.23	4.84
Aug.	7.13	5.80	5.63	6.94	5.64	5.45
Sep.	7.55	5.83	5.52	7.17	5.65	5.37
Oct.	7.61	5.47	4.99	7.33	5.21	4.81
Nov.	7.50	5.34	5.15	7.32	5.15	4.67
Dec.	7.36	5.22	5.67	7.19	5.04	5.49
Year	7.11	5.80	5.30	6.90	5.61	5.12

SPELTER.

we start the new year with smelting capacity 10 per cent greater than it was a year ago so we are facing a prospective output of over 400,000 tons in 1915, and if the hidden stocks come to light the market ought to remain within reasonable bounds.

In the following table we give the production and apparent consumption for the past eight years together with the stocks at the end of each year.

	Production	Consumption	Stocks Dec. 31
1907	246,860	226,969	26,364
1908	210,424	214,167	19,613
1909	255,760	270,730	11,167
1910	269,184	245,884	23,201
1911	286,526	280,059	9,049
1912	338,806	310,372	4,474
1913	346,676	295,370	40,659
1914	360,689	315,533	23,500

For reasons given above we believe the figures for 1914 should be taken with considerable reserve, and the trade are hoping that the government will "better late than never" find it possible to issue their usual statistics in the next few weeks.

REVIEW OF JOPLIN ORE MARKETS FOR DECEMBER.

The month of December was the best month of the entire year for the zinc mining industry. The price for zinc ores rose by leaps and bounds until the last week showed a maximum base price of \$52. The average prices by weeks rose from \$42.18 the first week to \$47.37 the last week. The only other period of the year that will at all compare with it are the last two weeks of August and the first two weeks of September when a maximum base price of \$50 was reached and the highest weekly average was \$45.89. What is important in this lies in the fact that the end of the year shows a more general high level of prices than any other two weeks of the year.

That there has been some speculation in the metal market as well as in the ore markets shows from the attitude of the factors in the market that have played the important parts as exporters and sellers of metal and also as buyers of ores. Just how far the investigators from the Department of Commerce have gone into the matter has not yet been learned but that the work is

still on and that there have been a number of facts disclosed in recent market movements that will prove interesting admits of little doubt.

A number of natural causes have entered into the market movements for ore during the last month. First may be noted the weather which has been extremely bad for production for most of the month and especially the last three weeks. So cold has it been that mills have been running only part time owing to the freezing up of the waterpipes, flumes and jigs. This has operated to cut off practically 75 per cent of the small outdoor producers who have open plants and no housing over cleaning places and shafts. Where operations have been kept up the capacity and efficiency have been low and even in the face of notoriously higher prices for their product, the ore producers were forced to see their output curtailed instead of raised as everyone tried to do. A number of mines have made every effort to increase their capacity and some plants long down have tried to start up again but have not been able to accomplish much but it is this class of efforts that have kept the output from decreasing to unusual levels. The holiday season has also interfered by cutting off two working days from the last week of the year.

Besides these conditions were the higher levels to which spelter climbed, especially sheet zinc which is made for the most part from Joplin ores. Brass also showed better prices and brass special spelter comes largely from Joplin ores. These facts along with the known condition of much lower Joplin zinc ore stocks at all of the smelters using Joplin ores, has made the Joplin ore market decidedly strong. Simultaneously the big Butte and Superior zinc mine at Butte, Montana, has been down for some time and cut off a large zinc ore supply from the American Metal Company's Bartlesville and Collinsville, Okla., plants.

The second week of December at the week end, this company entered the district and made a price upon every surplus stock pile in the field at prices running from \$49 to \$50, especially pressing the demands for high grade blende ores. The result was that the zinc ore market climbed to an unusual level as compared with the

SPELTER.

published price quotations on spelter. The ratio became approximately nine to one and all buyers apparently had to meet that figure regardless of the kind of spelter that they manufactured.

It is currently related in the Joplin district that the action of the American Metal Company was to obtain a sack of high grade ores for its new Langeloth, Pa. smelter which is nearing readiness for operation. It is reported here that the company will enter the sheet zinc and high grade spelter field, thus widening its previous field which has been principally concerned with the medium and low grade spelters made from western ores for the most part. This diversion had the effect of making the month of December an unusually active one and helped materially in reducing the surplus stocks to approximately 11,000 at the end of the year.

The prices for lead ore remained practically unchanged throughout the month, the range being from \$46 to \$47. The month's overage was \$46.09 while that of the year was \$46.20.

The year closes with a much lowered output and a great decrease in shipments over the previous year. In zinc blende the shipments reached 246,055 tons with a valuation of \$9,619,595. This shows a decrease of 21,611 tons and a decrease in value of \$1,903,992. The loss in calamine was but 612 tons. The shipment of lead ores was 42,816 tons which compares with 47,664 tons in 1913. The loss in value approximates one half a million dollars. The surplus stock at the end of the year was 700 tons.

AVERAGE PRICE PER NET TON BLENDE, CALAMINE AND LEAD ORES FOR THE PAST YEAR.

1914—	Blende.	Calamine.	Lead
Jan. 3	\$41.25	\$22.28	\$47.46
" 10	40.10	21.26	46.54
" 17	39.04	21.26	46.22
" 24	37.90	21.00	46.32

" 31	38.72	22.35	46.22
Feb. 7	39.02	21.10	50.01
" 14	39.28	21.12	49.19
" 21	39.60	22.04	49.93
" 28	39.12	21.00	49.81
Mar. 7	39.47	20.75	49.94
" 14	37.40	20.05	50.35
" 21	37.60	21.00	49.59
" 28	37.48	21.10	47.70
April 4	39.16	21.37	44.75
" 11	37.06	17.92	42.59
" 18	36.47	19.50	45.33
" 25	36.34	20.94	45.21
May 2	36.16	20.63	45.71
" 9	37.39	21.80	45.87
" 16	35.49	20.33	45.56
" 23	37.12	21.60	45.61
" 30	37.73	21.82	45.65
June 6	37.75	20.16	46.88
" 13	37.31	22.46	45.41
" 20	37.24	21.90	45.84
" 27	36.58	23.70	45.49
July 4	36.92	21.37	45.72
" 11	36.00	20.95	46.00
" 18	36.83	21.00	45.50
" 25	36.88	22.15	45.76
Aug. 1	38.00	22.20	45.77
" 8	36.46	21.00	45.68
" 15	41.05	21.20	45.72
" 22	44.20	24.98	46.79
" 29	45.89	24.35	45.72
Sep. 5	45.72	24.64	45.74
" 12	44.27	25.73	45.88
" 19	41.32	25.64	45.76
" 26	40.16	22.75	44.50
Oct. 3	38.00	22.60	45.55
" 10	35.57	21.64	40.96
" 17	44.54	19.72	39.51
" 24	38.07	19.77	39.88
" 31	41.10	21.30	38.75
Nov. 7	41.52	22.60	41.69
" 14	40.65	21.44	41.34
" 21	39.05	22.56	46.59
" 28	41.81	22.34	46.87
Dec. 5	42.18	23.93	46.41
" 12	43.46	25.24	46.85
" 19	47.21	25.00	46.58
" 26	47.37	27.27	46.09
Year's average	39.10	22.33	46.20

LEAD.

LEAD IN 1914.

The lead industry in 1914 made the most remarkable showing in its history, the output having increased 100,000 tons over 1913, which is by long odds the largest gain on record, in a year that will go down as a poor business year. This increase was accomplished despite the fact that the average price of lead in 1914 was below 4.00c New York and was the lowest average in sixteen years. There is no precedent for this, and it was directly opposite to what happened after the panics of 1893 and 1907 when the declines in prices caused decreases in the production. It has been proved that this country can produce a large quantity of lead cheaply, that the prohibitive tariff which remained in effect for so many years retarded rather than stimulated the industry, and that a 4.00c lead market need not be regarded with the fear and trembling of a few years ago. 1914 will also be remembered as the year in which the exports of domestic lead were resumed after a lapse of nearly 40 years, this branch of the business having amounted last year to over 65,000 tons. On the other hand there was a 50% falling off in the imports of lead in lead ore and base bullion due to the revolution in Mexico, and a similar decrease in the exports of lead of foreign origin, material that is smelted in bond.

As the lead producers do not report the stocks of domestic lead it is impossible to estimate the consumption, but this much

is known that the amount available for consumption in 1914 was 442,744 tons as compared with 419,463 tons in 1913 and 388,148 tons in 1912. It is impossible to believe that the actual consumption was as great in 1914 as in 1913, owing to the recession in all lines of industry, and therefore there must have been a heavy increase in surplus stocks and the total stocks at the close of the year were probably the largest on record.

The following is a comparison of the domestic production, the total production and the amount available for consumption since 1907:

	—Production—		Available for con- sumption
	Domestic	Total	
1907	352,381	413,389	360,715
1908	311,666	396,564	318,555
1909	352,839	446,901	368,664
1910	375,402	470,272	379,196
1911	391,995	486,979	385,319
1912	392,517	480,894	388,148
1913	411,878	462,460	419,463
1914	511,784	537,079	442,744

At the beginning of the year the trust price at New York was 4.15c and on January 9th it was reduced to 4.10c, although the sentiment at that time was favorable to the market. In the last half of January the demand for all metals was good and it was not surprising to see the price restored to 4.15c on February 2nd. It was a surprise to buyers, however, when a week later the market dropped to 4.00c, and the shock which they sustained then was remembered up to the end of the year. From the statistics now issued it is perfectly plain that the production was exceeding the demand, and the trust finding that the large stocks with which they started the year were gaining instead of diminishing, made their first real move to regulate the output.

There were two other reductions of \$2 a ton each during March, which was the month in which the first export business was done, and they had some effect in stimulating the domestic demand so that on April 27th the price was advanced \$2 to 3.90c. Then there was a period of nearly five months during which the trust price remained unchanged, even during August and the greater part of September when

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1912.	1913.	1914.	1912	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	3.90	4.31	4.21	3.80
July	4.73	4.37	3.90	4.60	4.25	3.75
Aug.	4.56½	4.63	3.90	4.46	4.56	3.73½
Sep.	5.05	4.75	3.86	4.94	4.62	3.67
Oct.	5.10	4.45	3.54	4.91	4.31	3.39
Nov.	4.69	4.34	3.68	4.50	4.18	3.58
Dec.	4.36	4.06	3.80	4.19	3.94	3.67
Year	4.48	4.40	3.87	4.28	4.26	3.74

* Trust price.

LEAD.

the markets on other metals were literally "all over the place." The war's effect on lead could not be accurately gauged, for whereas the situation was injured in some ways it was benefitted in others. The suspension of the silver quotations and exports were thought likely to curtail the production of desilverized lead, and a larger export demand for lead was contemplated which would more than offset the loss in domestic consumption.

However, at the end of September it was clear to the leading interest that the production was not declining and that it should be made to decline as the surplus in the hands of all the smelters was increasing rapidly. Therefore the price was lowered in quick succession to 3.75c to 3.60c to 3.50c, and there is no doubt that it was hinted to the producers that if they did not obey the warning the price would be lowered if necessary to 3.00c. But the principal producers in

Missouri and Idaho about the middle of October curtailed their operations by 25%, which stopped the decline in the market. As it was the year's output was 100,000 tons greater than in 1913 which is larger than the total gain during the entire ten years preceding, viz.:

1904	308,603 tons
1913	411,878 tons
1914	511,784 tons

The news of the curtailment brought consumers into the market and there was also a good export business during October and November with the result that the price was advanced to 3.60 on November 12 and to 3.70 and 3.90 during the following two weeks. This last advance was more than the market could stand, the statistics plainly show the reason why, and on November 27th it was reduced to 3.80c. There was no change during December and the market was less active and less strong than in November.

LEAD PRODUCTION IN 1914.

Preliminary Figures of the U. S. Geological Survey.

The year 1914 was marked by an enormous increase in the output of domestic lead in the United States, according to C. E. Siebenthal, of the United States Geological Survey—an increase of nearly 100,000 tons over the production of any preceding year. There was also a heavy decrease in the tonnage of lead of foreign origin treated in the United States, and for the first time in years a great increase in the quantity of domestic lead exported to European countries. At the same time the average price of lead in the United States was the lowest since 1898.

The estimates have been compiled from reports to the Survey by all lead refineries and soft-lead smelters in operation during the year. These reports cover actual production for the first 10 or 11 months of the year, with an estimate for the remainder of the year, and from them the figures of production are made up without change. The statistics of imports, exports, and lead remaining in warehouse have been taken from the records of the Bureau of Foreign and Domestic Commerce for 11 months, the figures for December having been estimated.

The production of refined lead, desilverized and soft, from domestic and foreign ores in

1914 was approximately 537,079 short tons, worth at the average New York price \$41,892,162, compared with 462,460 tons, worth \$40,696,480, in 1913, and with 480,894 tons in 1912. The figures for 1914 do not include an estimated output of 12,850 tons of antimonial lead against 16,665 tons in 1913 and 13,552 tons in 1912. Of the total production, desilverized lead of domestic origin, exclusive of desilverized soft lead, is estimated at 312,257 tons, against 250,578 tons in 1913 and 221,480 tons in 1912; and desilverized lead of foreign origin comprised 25,295 tons, compared with 50,582 tons in 1913 and 88,377 tons in 1912. The production of soft lead, mainly from Mississippi Valley ores, is estimated at 199,527 tons, compared with 161,300 tons in 1913 and 191,614 tons in 1911, the largest prior output of soft lead. The total production of lead, desilverized and soft, from domestic ores, was thus about 511,784 tons, almost 100,000 tons more than in any previous year and 25,000 tons more than the total output of the country from both domestic and foreign sources in any previous year.

The final figures of the production of soft lead are likely to show an increase of a few

LEAD ANTIMONY.

thousand tons over those here given, for the reason that the argentiferous lead smelters and refineries undoubtedly treated more or less soft lead from the Mississippi Valley which is not distinguished from silver-lead ores in their preliminary estimates. In any event Missouri has undoubtedly retained first place in lead production, with the largest output in the State's history.

Imports and Exports.

The imports of lead are estimated at 11,764 short tons of lead in ore, valued at \$743,332; 14,998 tons of lead in base bullion, valued at \$1,029,233; and 142 tons of refined lead, valued at \$9,751—a total of 26,904 tons, valued at \$1,782,316, compared with 57,145 tons, valued at \$2,965,817, in 1913. Of the 1914 imports about 20,000 tons, or nearly three-fourths, came from Mexico, against 47,847 tons in 1913 and 79,728 tons in 1912, the decrease being due to domestic strife in that country. From Germany came 2,265 tons, from German East Africa 1,278 tons, and from Chile about 1,250 tons.

The exports of lead of foreign origin smelted or refined in the United States again show a big decrease, being estimated at 21,193 tons, against 54,323 tons in 1913 and 76,273 tons in 1912.

For the first time in years there were exports of domestic lead to Europe, the total for the year being estimated at 62,924 short tons, valued at about \$4,804,000.

Lead Available for Consumption.

The amount of lead available for consumption during 1914 may be estimated by adding to the stock of foreign lead (domestic stocks are not known) in bonded warehouses at the beginning of the year (5,310 short tons), the imports (26,904 tons), the additions by liquidation (16 tons), and the domestic production (511,784 tons), making an apparent supply of 544,014 tons. From this is to be subtracted the foreign lead exported from warehouse (21,193 tons), the foreign lead exported in manufactures under drawback (about 10,000 tons), the exports of domestic lead (62,924 tons), and the stock in bonded warehouses at the close of the year (assumed to be the same as at the close of November, 7,153 tons), leaving as available for consumption 442,744 tons, which, compared with 419,463 tons in 1913, 388,148 tons in 1912, 385,319 tons in 1911, and 379,196 tons in 1910, and taking into account trade conditions during the year,

seems to be an excessive figure, making it seem very probable that there has been an increase in lead stocks. Of the foreign lead remaining in warehouses at the close of November, 1914, there was at El Paso 2,176 short tons and at New York 4,846 tons, with small quantities at Chicago and St. Louis.

ANTIMONY IN 1914.

The antimony market was in a dull and stagnant condition all during the first half of 1914 and prices showed no fluctuations of any importance. Cooksons remained at just a little above 7.00 and ordinary grades at a little under 6.00, the averages from January to June being as follows:

Cooksons	7.25c
Halletts	6.95
Ordinary	5.87

There was considerable complaint on the part of English and Continental makers at the lowness of the market, and early in the year there seems to have been an attempt made to establish a syndicate or comptoir, in order to control output and prices. But nothing came of it owing to the refusal of several important producers to join the undertaking, and the difficulty of controlling the Chinese and Japanese markets was also a stumbling block. The cost of producing antimony in China and Japan is lower than anywhere else in the world and probably 75% of the supplies of ordinary 99% grade were furnished last year from this quarter, England still maintaining her supremacy on the high grades.

The consumption of antimony in this country was considerably below normal owing to the distress of business generally, and the lack of railroad orders in particular.

In July the price of ordinary grades declined to 5.25% and as the East still continued to be free sellers it seemed not at all unlikely that the market would break 5.00 before long.

With the outbreak of the war on August 1st there was a wild rush to buy antimony, mostly on the part of speculators, who remembering that the price had gone to 25c in the Russo-Japanese war, expected to see the performance duplicated, owing to the cutting off of supplies and the anticipated large demand for munition pur-

ANTIMONY.

poses. In ten days the metal tripled in value, viz.:

	Cookson's	Ordinary
July 31	7.20	5.50
Aug. 3	7.87 1/2	6.12 1/2
Aug. 4	8.25	6.62 1/2
Aug. 5	9.12 1/2	8.12
Aug. 6	13.00	11.00
Aug. 7	16.50	14.50
Aug. 10	20.50	17.50

Later in the month when it was seen that despite difficulties, the metal could be brought from England and the East, and that the demand for war purposes did not instantly develop, there was a collapse in the speculation and a collapse in prices. By the end of August the market was dead dull with the price of ordinary grades nominally 12.25c.

In September there was absolutely no demand and on sales by disgusted speculators the price declined to 8 1/2c. But as was afterwards found out the Russian government quietly started buying in England and Japan during that month and early in October the Russian orders appeared in our market. In the first week in October Russia bought about 500 tons of spot antimony at from 8 1/2c up to 11.00c and towards the close of the month a further 350 tons at 11.00c to 13.00c. This 850 tons represented about 75% of the stock in New York and the whole quantity was shipped to Archangel. As there was nothing further to be had here Russia transferred her orders to Japan and according to reports, orders for 800 to 900 tons were placed during November for direct shipment to Vladivostock. It also appears that the Japanese government entered into the market about December 1st and bought some 400 tons. These large sales in Japan sold up the market and for the last five weeks of the year this country could get no offers from Japan for any quantity or for any delivery. In consequence the price of futures advanced, and whereas in November there had been a spread of from 3c to 5c per lb. between spot and futures, at the end of the year there was really no difference between the two. In November there was only a local scarcity of supplies, but at the end of December the scarcity had become worldwide. It is estimated that since the war com-

menced Russia has been supplied with 2,500 tons of antimony and that 2,500 tons more have been taken by other governments and armament makers including the cartridge and bullet manufacturers in this country, or in other words 5,000 tons have been bought for war purposes in six months. If the demand should continue on the same scale for another six months a further look for its prices is undoubtedly in store because stocks all over the world have been reduced to a very low level and production cannot be increased fast enough to keep pace with such a demand.

England and France have placed embargoes on antimony and exports from these countries have not been permitted, except in a few special cases. It is thought that these embargoes will remain in effect until the war ends, which means that this country will depend largely if not entirely on Japan and China for her supplies. Altogether the situation is a very serious one and unlike anything we have had in the past except during the Russo-Japanese war, when as we mentioned before, the price went above 25c and remained there for over a year.

The following quotations on Hungarian (ordinary) antimony are for the month of July 1915:

	High	Low	Settle
January	6.10	5.75	6.00
February	6.10	5.75	6.00
March	6.00	5.75	5.90
April	5.75	5.45	5.80
May	5.80	5.40	5.75
June	5.80	5.40	5.60
July	5.60	5.30	5.40
August	15.00	6.00	11.00
September	12.00	8.50	10.00
October	11.50	8.00	11.00
November	14.75	13.50	14.14
December	14.25	12.00	13.15

The following quotations on Chinese antimony are for the month of July 1915:

	High	Low	Settle
1914	18.00	7.00	8.50
1915	9.00	7.00	7.10
1916	9.50	8.00	8.00
1917	9.10	6.80	7.48

ALUMINUM

ALUMINUM IN 1914.

Aluminum was the least interesting of all the metals during 1914 and unlike the others was little affected by the war. The consumption was about 25% less than in 1913 which caused a smaller production, smaller imports and lower prices than the year before.

In January the market price was 18.75c and there was a gradual decline until the end of July when the price reached 17.00. This was the lowest price ever known in this market and was more than 6c per lb. below the average for 1913. With the breaking out of the war the market advanced to 21.00c on the theory that all European competition would be removed, and that the domestic producers would make use of the opportunity to establish prices on a more remunerative basis. It was soon seen however that the imports did not stop, that several of the neutral countries could make and were making shipments to this country and that the competition from abroad was still a potent factor in the situation, and the market therefore reacted. It did not go as low as it did in July but at the close of the year the price was 19c.

The war has helped the makers of aluminum ware as several large government orders have been placed here for aluminum water bottles and cooking utensils. We understand that an aluminum water bottle is part of the equipment of every English soldier.

In the casting line of the industry business has been slow and the demand from the steel trade was naturally far below normal.

We estimate that the domestic production was from 40,000,000 to 45,000,000 lbs. as against 50,000,000 in 1913, and consumption approximately 50,000,000 lbs. or 25,000,000 lbs. less than the 75,000,000 lbs. reported last year.

The monthly price fluctuations are given below:

	Average		
	High.	Low.	Average
January	18.00	18.50	18.80
February	18.00	18.50	18.80
March	18.25	18.00	18.50
April	18.25	17.75	18.08
May	18.12	17.75	17.97

June	18.00	17.50	17.82
July	17.75	17.37 1/2	17.59
August	21.50	18.00	20.38
September	20.50	18.25	19.28
October	18.50	18.00	18.25
November	19.50	18.00	18.85
December	19.25	18.75	19.02

The fluctuations for the past four years follow:

	High.	Low.	Average.
1914	21.50	17.37 1/2	18.59 1/2
1913	27.12	18.50	23.63
1912	28.00	18.50	22.52
1911	22.25	18.75	20.54

ALUMINUM, ANTIMONY AND SILVER PRICES IN DECEMBER.

Day.	Aluminum. Cts.	Antimony			Silver	
		Cook- sons. Cts.	Hal- lets. Cts.	Hun- garian Cts.	New York. Cts.	Lon- don. d.
1.	19.00	16.75	15.75	14.00	49 3/4	23
2.	19.00	16.75	15.75	14.00	49 7/8	23 1/2
3.	19.00	16.50	15.25	13.75	49 7/8	23 1/2
4.	19.00	16.50	15.25	13.50	49 5/8	23
5.					49 3/4	23 1/2
6.						
7.	19.00	16.37 1/2	15.12 1/2	13.25	50 1/4	23 1/2
8.	19.00	16.25	15.12 1/2	13.12 1/2	50 1/4	23 1/2
9.	19.00	16.00	14.87 1/2	12.87 1/2	49 3/4	23 1/2
10.	19.00	16.00	14.87 1/2	12.87 1/2	49 7/8	23 1/2
11.	19.00	16.00	14.87 1/2	12.87 1/2	50	23 1/2
12.					50	23 1/2
13.						
14.	19.00	16.00	14.87 1/2	12.87 1/2	49 7/8	23 1/2
15.	19.00	16.00	14.87 1/2	12.87 1/2	49 3/4	23
16.	19.00	15.75	14.87 1/2	12.87 1/2	49 5/8	22 1/2
17.	19.00	15.75	14.87 1/2	12.87 1/2	49 1/2	22 5/8
18.	19.00	15.50	14.50	12.75	48 7/8	22 5/8
19.					48 1/2	22 1/2
20.						
21.	19.00	15.00	14.00	12.50	49 3/4	23
22.	19.00	15.00	14.00	12.75	48 7/8	22 3/8
23.	19.00	15.25	14.25	13.25	48 3/4	22 1/2
24.	19.00	15.25	14.25	13.25	48 3/4	22 1/2
25.						
26.					48 3/4	....
27.						
28.	19.12 1/2	15.25	14.25	13.25	48 3/4	22 1/2
29.	19.12 1/2	15.25	14.25	13.25	48 7/8	22 3/4
30.	19.12 1/2	15.25	14.25	13.25	48 7/8	22 3/4
31.	19.12 1/2	15.75	14.25	13.25	48 7/8	22 1/2
High	19.25	17.00	16.00	14.25	50 1/4	23 1/2
Low	18.75	15.00	14.00	12.50	48 1/8	22 3/8
Avg'e	19.02	15.82	14.74	13.15	49.38	22.90

The Steel and Metal DIGEST

VOL. V.

NEW YORK, FEBRUARY, 1915.

NO. 2

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,
C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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A CONFUSING SITUATION.

Caution the Order of the Day—Fundamental Conditions Improve, but Home Trade is Very Disappointing.

The first month of the New Year, January 1915, will go on record as a month favorable for continued recovery in nearly all fundamental conditions, such as finances, credit and foreign trade, etc., but decidedly disappointing in the recovery of home consumption and enterprise that so many expected would issue in the New Year. The statements of some of our largest corporations, including the U. S. Steel Corporation, have served to put on record, the depression and falling off in business during the last quarter of 1914. In the case of the U. S. Steel Corporation, whose statement showed that their net earnings in that quarter had been the lowest in any quarter in the existence of the Corporation, necessitating the passing of its common dividend. This has had a depressing effect, carrying as it does moral and political significances surpassing the financial features of the incident. In consequence, the mind of business has been more or less in a depressed state, counting up the losses of the past year.

The steel industry, however, which is apt to foreshadow conditions in other

EDITORIAL.

er American industries, has shown a steady improvement during the month, but the progress has been very slow, and this industry still remains only 55 per cent of normal. The trade is undecided as to whether the improvement represents only a natural reaction from a depression such as has never before been experienced in their history, or whether it means that a change to quick return to normal conditions has begun. Time alone can tell this.

One of the favorable developments has been the complete change in the attitude of the Government and popular opinion towards the financial interests, and what is known as big business. Troubles and unemployment have taught a lesson that sound and economic argument and common sense failed to do. There is now no disposition to harass business, but to encourage it, and it remains to be seen whether convalescence from the attacks that have been suffered from this direction is to be quick or slow. We have greatly benefited by the war demand for our grains and other material, which we have been selling at record profits, and which has not only restored but largely increased our international balance of trade, and which is running now at the rate of \$1,500,000,000 per annum. Our country is making money fast by reason of the troubles and necessities of our fellow nations, besides keeping at home several hundreds of millions of dollars, that coming from our home earnings, were spent abroad by our tourists and the Americans living abroad, who now find America the pleasantest and safest place in which to spend their money. Besides this the whole country has been economizing, and while present

market values are very low for the securities that represent our properties, America is richer to-day in cash and actual property than any time in her history.

The question naturally arises why is there not seen a greater response in business by reason of these sound and favorable conditions? Why is it that except for our export trade to Europe, business continues so dull and disappointing? Why is it that with a great harvest being sold at the highest price in 25 years, business even in the middle west, where such conditions might be expected to be reflected, recovers so slowly?

The explanation is that solvency and wealth makes for caution in a nation as it does in the individual in times like the present. The west proposes to keep the big crop money they are making well in hand for emergencies. Our bank reserves are high, but our bankers and capitalists are not only unwilling to enter into expansive plans, but are determined to keep their resources in a form where they are readily available, in other words, Caution with a big C is the order of the day for which the war is of course responsible. While we are far removed from its area, and chances of our being involved hardly a possibility, still after what has happened in the past 7 months nothing can be called impossible. The European war is affecting our nerves, and has developed a bump of caution such as we did not believe Americans possessed. Hence while there is plenty of money, investments are not sought, real estate transactions are almost nil, building is extremely quiet, and new enterprises find no backers. In other words, we are "sitting tight"

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counting our blessings and in the case of some of the trades our big profits, but we are nevertheless determined to employ an attitude of "watchful waiting" pending war developments. In consequence, the wheels of industry turn slowly—unemployment affecting the consuming powers of the country has become in our leading cities a serious problem, and promises to remain so for the balance of the winter. Optimism is talked, but not put into action.

As the American spirit of enterprise cannot be held down indefinitely especially when our basic resources are plentiful and our financial and business structure as sound as it is, "Watchful waiting" must some day give place to confident action, and the longer the latter is delayed the greater will be its demonstration when it comes. We have and are accumulating a vacuum in business enterprise and consumption that will be overcome some day with a rush, the moment the power holding it back, is removed. This year an enormous amount of our mineral resources have been kept in the ground compared with the output of recent years, which output created no surplus stocks. It is impossible to believe that our output will not only be restored again but will be even greater than ever to make up for the curtailments of the past year. Also the advantages that have accrued from our freedom from the destruction and losses suffered by Europe have not yet begun to be demonstrated, and we think is hardly realized, and won't be until our mines and factories instead of running one half to three quarters as at present will be pushed to their utmost capacity to supply urgent needs.

It will all seem so logical then. We will be the same America of three years ago when our full operations still showed no surplus stocks accumulating, and besides there will be a larger foreign demand than ever knocking at our doors, not a war demand but a peace demand. The trade of the world and the way along which it will travel, by reason of new conditions has been put in the melting pot by this awful epoch making war. The result will not only be revolutionary in policies but also in manner, and it is difficult to see how this chance can escape falling to a great extent to the advantage of a country that has not had its facilities damaged or destroyed and its manufacturing machinery, human as well as material, disorganized. By our present economy and conservation of resources we are accumulating the energies and power to take a new prominent position in the trade of the world. The effect of the war will be to hasten by a quarter of a century this position. The manufacturer and merchant who appreciates this and lays his plans to take advantage of it when it comes will have reason to be proud of his foresight. To sum up we will transpose the adage "in time of peace prepare for war" and say "in time of war prepare for peace."

SPECULATION IN GREENE COUNTY COAL ACREAGE.

On Monday, January 18, the First National Bank at Uniontown Pa. was closed by the national banking authorities. The next day receivers were appointed for Josiah V. Thompson, president of the bank and for many years a conspicuous speculator in Greene County and other coking coal acreage. These events were followed

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by receiverships for several of Mr. Thompson's associates in the coal land operations and for one coke producing company.

The various events represent the collapse of a great speculative movement. In the petition for Mr. Thompson's receivership his liabilities are stated at \$22,000,000, \$15,000,000 of this being secured by mortgages, \$7,000,000 being unsecured and upon promissory notes, while the assets are stated at \$70,000,000. Mr. Thompson's associates are represented by tens or hundreds of thousands where Mr. Thompson's figures are in millions. The total liabilities of the group cannot be stated with any closeness because they were all mixed up with each other, in partnerships, mortgages and notes. The assets of course cannot be stated even vaguely. It was because they had no generally recognized value, in relation to their paper value, that the failure occurred.

There were many who expected this outcome to Mr. Thompson's operations. It was of the kind that is successful up to a certain point but is doomed to failure if carried too far. Years ago Mr. Thompson was keen in foreseeing value in coking coal land and he anticipated the steel industry in picking up acreage, whereby he was able to sell various parcels at excellent profits. It was his sense of proportion that failed. He expected the steel industry to require more acreage than it has required, and in late years there is reason to suspect furthermore that he bought acreage not because he wanted it or thought the steel industry needed it, but in order to protect his market.

There were several reasons why the steel industry did not take Mr. Thompson's coal acreage to the extent he planned. In the first place, the iron and steel industry has not grown nearly as rapidly in the past

six or seven years than it had been growing previously. In the second place, the manufacturers, the consumers of coke, have had less surplus earnings to invest than formerly.

In the third place, constituting the most important influence, there has been in recent years a complete change of attitude on the part of iron and steel interests. Their attitude has changed entirely as to carrying minerals in the ground. They have not the fear of 15 years ago that they might be caught with fine plants and no raw materials to put into them. As to coking coal in particular their attitude has changed. They have embraced by-product coking, which permits the use of a lower grade of coal, and in experimenting with the by-product process they have found that it is very difficult to determine in advance just what a given coal will do, and whether it will run uniform with the early samples. Their policy therefore is to build the best by-product plants they can, and seek the coal from time to time, buying acreage, perhaps, but only when they can secure it at low prices.

There is no great probability that affairs at Uniontown will be straightened out at any early date. A great legal battle may come first, indeed, by an attack being made by unfriendly creditors upon the legality of these individuals having gone into the hands of receivers instead of into bankruptcy. The coal acreage has a value, but it must be remembered that heavy payments have been made out of previous profits, in interest and in purchases of additional acreages, so that it is easily conceivable that, giving the acreage involved a very fair valuation per acre the total valuation will not exceed the various liabilities.

BUSINESS TRENDS.

COMMERCIAL FAILURES.

The largest number of failures ever recorded in any month and the seventh largest monthly total of liabilities were features of the January report to Bradstreet's Journal. An increase of 6 per cent over December's hitherto high record, and of 36 per cent over January a year ago was shown, but against this it is to be noted that New York City failures were fewer than in December or January last. Liabilities showed an increase of 30 per cent over December, and 43 per cent over January a year ago, one large suspension, however, accounting for the excesses, and, aside from this, the report may be said to reflect, largely speaking, heavy liquidation of small traders. Two thirds of the increase in number over a year ago occurred in the south.

In the following table will be found the record of failures monthly and quarterly as reported by "Bradstreet's Journal" for the first eleven months of the present year.

	No of failures.	Assets.	Liabilities.
1914.			
January	1,729	\$20,421,273	\$35,196,682
February	1,206	10,820,258	20,159,736
March	1,260	13,530,577	26,159,420
First quarter	4,195	44,772,108	81,515,838
April	1,221	8,628,578	17,705,784
May	1,181	9,493,349	17,491,672
June	1,151	23,648,220	31,593,019
2nd quarter.	3,553	41,770,147	66,790,475
Six months..	7,748	86,542,255	148,306,313
July	1,219	19,292,236	30,545,567
August	1,191	16,282,462	37,128,027
September ...	1,367	21,231,211	32,105,387
3rd quarter..	3,777	56,805,909	99,778,981
Nine months..	11,525	143,348,164	248,085,294
October	1,445	12,567,097	23,561,160
November ...	1,586	13,366,004	24,850,367
December ...	2,213	21,202,279	38,715,868
4th quarter..	5,244	47,135,380	87,157,395
Twelve mos..	16,780	199,921,905	362,235,312
1915.			
January	2,356	35,295,256	50,361,785

BANK CLEARINGS.

The aggregate of clearings at all cities in the United States for January, 1915 was \$13,332,000,000 as compared with \$16,052,000,000 in January 1914, and \$16,090,000,000 in January 1913.

THE STOCK MARKET.

Stock transactions on the New York Stock Exchange during the month of January reached a total of 5,028,113 shares, against 1,487,982 shares in December and 10,912,401 shares in January, 1914. The par value of bonds sold during the past month amounted to \$56,867,500, as compared with \$35,327,000 in December and \$88,823,600 in January of last year.

The heaviest sales of stock for one day in January were recorded on Friday, January 29, when 438,129 shares changed hands. Bond transactions reached the maximum figure on Friday, January 22, when the sales amounted to \$4,920,000. Exclusive of Saturdays, the smallest volume of business in stocks was reported on Thursday, January 14, when the total sales were only 118,655 shares. Bond transactions were lightest on Monday, January 4, amounting to only \$1,467,500.

COMMODITY PRICES.

The following table gives "Bradstreet's" index numbers (the totals of the prices per lb. of ninety-six articles, since Jan. 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan. 8.263	9.231	8.836	8.949	9.493	8.885	
Feb. 8.302	9.073	8.766	8.958	9.459	8.861	
Mar. 8.217	9.111	8.692	8.902	9.405	8.832	
Apr. 8.316	9.200	8.722	9.098	9.297	8.756	
May 8.302	9.039	8.459	9.270	9.139	8.622	
June 8.396	8.911	8.529	9.102	9.072	8.622	
July 8.457	8.925	8.594	9.112	8.952	8.656	
Aug. 8.504	8.822	8.657	9.159	9.011	8.708	
Sep. 8.591	8.952	8.819	9.215	9.100	9.757	
Oct. 8.748	8.927	8.806	9.451	9.152	9.241	
Nov. 8.964	8.884	8.892	9.178	9.225	8.862	
Dec. 9.126	8.784	8.982	9.546	9.229	9.035	
Year 8.515	8.988	8.713	9.186	9.211	8.903	

OUR FOREIGN TRADE.

	December.	1914.	1913.
Exports		245,692,558	243,195,628
Imports		114,656,515	184,025,571
Excess of exports		130,976,043	60,170,057
Twelve months			
Exports		2,113,624,050	2,481,018,262
Imports		1,780,276,001	1,792,596,489
Excess of exports		324,348,049	691,021,812

1914 WILL LONG BE REMEMBERED.

Walter H. Barnard, the well-known London Metal Broker, reviews the situation as follows:

"Because of the war, the year 1914 will live in the memory of the present generation. 'Coming events cast their shadows before,' and it is a significant fact, that the decline in trade synchronized with the German Army developments which were being brought to an issue in March last. From then onwards there was a distinct contraction, which culminated in the absolute stoppage, brought about by the Moratorium declared on the 4th of August. This wise step saved the prestige of many important firms, and though financial credit was practically restored by the re-establishment of normal conditions on 5th of November, in some cases the period of three months hardly proved long enough for all difficulties to be surmounted. The commendable action of the Treasury however, bridged the weakness, and enabled a new start to be comfortably made. In the meantime, International exchange had completely vanished, and the Moratorium meant all that might have been intended. It was in September that the Bill Brokers first made an attempt to cope with this suspension, and thanks to them and to some of the leading Joint Stock Banks, the way was paved by the beginning of November, for some sensible business to be done. The trouble of foreign exchange was no greater than that of shipping. The requirements of the Government had made steamers scarce, and freight was costly because of War Risks, whilst in many cases traffic was impossible.

"The comparative ease with which all financial difficulties were surmounted, has proved absolutely the strength of the British system, but admittedly something has to be learned from the German system, which made the merchant a Banker, and the greater Banker a still greater merchant.

"If Germany had been content to dominate the world by commerce, she might have been successful; fortunately for other

nations she has been satisfied to abandon the substance of commercial success, for the shadow of a disqualifying military failure.

"America has assumed an interesting position. The fact that the English £1 sterling was for sometime of greater value than 5 dollars, or, say, at a premium of 15 to 20 cents has not deterred her financial authorities from suggesting that the Federal Reserve is primarily intended to enable New York to become the World's financial centre, but the question for America to consider is whether these views are likely to be adopted by those whose dealings enable them to give the preference to London. The success of such a notion must depend on the value of the faith and belief of other countries.

"The capture of Germany's trade is a myth, unless supported by the guarantee of a bounty system, similar to that by which it was held by Germany. Most established British houses have been capturing all that was possible and profitable over the whole period of their existence.

"The decline in trade was persistent from March till November, when normal requirements had to be satisfied, and from then onwards, there was a distinct improvement, which shows every sign of being progressive. From a commercial point of view Germany must be regarded as isolated, and the world must exist for all time, with or without such isolation. It is a circumstance that must be recognized and admitted, and in time forgotten.

"Out of the ashes of the phoenix of trouble a new state of affairs must arise. Loss of income in some cases, and loss of capital in others, can only create the desire to make that individual progress which has the reflexive power of improving the position of all, and with this as the keynote to the outlook, it is fair to assume that arising out of the new order of things, there must be gradual improvement as the year 1915 progresses."

THE POSITION OF THE RAILROADS.

The annual statistics presented by the "Railway Age Gazette" afford an opportunity to study with little effort the position and recent conduct of the railroads. The statistics of greatest interest to the iron and steel trade were reproduced in large part in our January number, but the railway paper's annual presentation contains much more that is of value in considering the position of the railroads.

The summary of roads now in the hands of receivers shows a total mileage of 21,048 miles, with \$434,599,738 of outstanding stock and \$830,728,790 of funded debt. Of course mistakes are made in railroad building, particularly in good times, and it is not remarkable that a number of short lines should have to take refuge in receiverships. The list at present, however, is decidedly impressive. In the first place, the 21,048 miles represent about nine per cent of the total railway mileage of the country, about five per cent. of the outstanding stock and about eight per cent. of the funded debt. The roads are not all small roads, either, there being six with more than 1,000 miles, as follows:

	Miles.
Chicago & Eastern Illinois.....	1,282
Cincinnati, Hamilton & Dayton ..	1,015
International Great Northern.....	1,106
Pere Marquette	2,322
St. Louis & San Francisco	4,747
Wabash	2,514

The mileage of road that went into receivership in 1914 was 4,222 miles, the greatest since 1896, barring 1908 and 1913, and only a few unimportant receiverships were lifted.

The new railway line constructed in 1914 was 1,532 miles, the smallest since 1895 according to the "Railway Age Gazette's" figures, but the smallest since 1865 according to Poor's old statistics, Poor showing a

larger mileage for 1895 than the railway paper, and in the circumstances it seems better to regard the latter figure as the more trustworthy. Still worse than the poor showing made for 1914 is the fact as stated that there is hardly any new mileage now contemplated, so that at the moment 1915 promises to be a leaner year than 1914 has been. It goes without saying, of course, that there is no occasion for heavy building of new line at this time. The record year for new construction of railroad fell over a quarter of a century ago, in 1887, with 12,000 miles. The railroads are built and the development naturally lies largely in increasing their capacity, but in this respect a very poor showing indeed is made, in that the number of miles of additional line track laid, in second, third, fourth, etc., track was only 595 miles. In 1912, the latest year for which statistics are available, precisely 90 per cent of the steam roads of the country were single track, and if their traffic is to grow with the growth of the country there ought to be several thousand miles of additional track laid every year. At the rate of second-track laying in 1914 it would require more than two centuries for the existing single track roads to be made double track.

With the view not uncommonly held in the steel trade, that the railroads ought to buy say 200,000 to 250,000 freight cars every year we do not fully agree. There are about 2,400,000 freight cars in the country, and only about seven per cent. of them have less than 60,000 pounds capacity. We cannot see, therefore, why an average of much over 100,000 cars a year should be built. At the same time it will probably be generally admitted that there was not enough car replacement in the past year to make up for wear and tear, and the number built last year was 104,541 cars, including a small Canadian output.

ANNUAL REVIEW OF SPELTER BY A LONDON AUTHORITY.

Rudolf Wolff, Kreuger & Co., London, review the spelter market for the year 1914 as follows, and we reproduce it in full on account of the extraordinary interest felt in this metal at present, caused by the recent rapid advance in price.

For the first six months of the year under review there is little of interest to record, the market remained exceedingly dull and the price almost stationary at about £21 10/. The outlook was by no means bright. The trade expansion of previous years was not only arrested, but a distinctly retrograde movement was in progress, and financially also considerable depression existed which in some of the leading centres had reached a very acute stage. The whole position was aggravated by the Home Rule crisis in Ireland, the revolution in Mexico, and the continued disturbed conditions prevailing in the Balkans. In early July there were signs of some improvement which, however, had no time to mature; the crisis impending on the Continent developed with extreme rapidity and war, involving the greater part of Europe, broke out in the first days of August. The effect of so great a catastrophe on the course of markets could not be calculated; with regard to Spelter the price rushed up to over £40 per ton within two to three weeks, but almost as quickly collapsed to £23; since when, however, though still irregular, the market has resumed a more normal course.

In the United States of America during the first seven months of the year the Spelter market was in a very depressed condition, but later on great relief was afforded by the export war demand from England.

During the first quarter of the year there was really no movement in prices worthy of special mention; from £21/12/6 in early January to £21 5/- in middle February, with a small recovery to £21/7/6 at the end of March, represented the extent of the fluctuation on the London market, whilst the Syndicate prices were fixed and maintained at £21/12/6, £21 15/- and £21/17/6 for January, February and March respectively. The restriction of the output imposed by the Convention on its members for the closing months of 1913 was withdrawn on the 1st of January, and resulted in the accumulation month by month of a large stock of metal on the Continent. At the same time

consumption fell off, the zinc sheet trade being in a particularly bad condition. Matters did not improve during the second quarter. The price on the London market was practically maintained, but the Syndicate towards the end of April reduced theirs by 10/- per ton to £21 10/- for April and May, £21/12/6 June/July, and £21 15/- for August, thus coming more into line with the London quotation. At the same time the Spelter Convention once again ordered a reduction in output, and 15% was finally agreed upon, but, in spite of this, stocks continued to accumulate in the hands of the German Syndicate, and by the end of June totalled no less than about 90,000 tons. The galvanized iron trade during these months had lapsed into a very poor condition, the same with the brass trade, and zinc sheets went from bad to worse. In July there was evidence of some improvement, and a good demand sprang up for all qualities of spelter not only in this country but here and there on the Continent. This movement might easily have developed very favorably but the European crisis and the outbreak of war, which so rapidly followed, entirely upset the whole situation. On the 31st July, on account of the crisis, the London Metal Exchange closed. In August with the heavy orders given out for war material, the scarcity of spelter in the country was acutely felt, and until supplies were forthcoming from America in relief of the situation, almost panicky conditions prevailed: the price in about three weeks advancing to over £40. The reason for this unheard of rise was the fact that brass and ammunition makers, mostly in the Midlands, were, at the outbreak of war, caught entirely short of stock in spelter, for a number of years in the Midlands, consumers, well knowing that all unsold spelter is consigned to their district, have been in the habit of running their supplies very close, and of picking and choosing when purchasing, as they always have had everything ready at their doors. They could, moreover, not be so much blamed for running their supplies down to a vanishing point, when one recollects that it

was well-known that the German Syndicate held surplus stocks of something over 90,000 tons at the outbreak of war: this supply was, of course, suddenly cut off, whilst the demand for brass strip was trebled or quadrupled. This proved, however, to be the highest point of the year, and the rise was much overdone: America continued to sell, and with odd parcels arriving from neutral countries and the Colonies, the price rapidly gave way, and £25 was reached in early September, whilst even lower prices were accepted for forward delivery. At this juncture some heavy orders were placed by Russia, and a sharp rally took place to £28 10/- for prompt delivery, but on this particular demand being satisfied, the decline again set in, and by the middle of October the price was back to £23. On the 6th November the London Metal Exchange reopened, and this month witnessed a steady recovery in all metals, and the price of spelter rose to £26 with the Americans holding off the market and consistently advancing their prices. Consumption was steadily maintained, due almost entirely to the busy conditions ruling in the brass trade, and all metal arriving went straight through to consumers' works. In December there was some fluctuation: Russia and France again coming into the market the position developed strongly, and up to £28 5/- was paid about the middle of the month, but from this point a decline set in in consequence of some rather free offering on the London market, and the price dropped to £26 15/-. Very little actual metal, however, was disposed of, and some support being extended at this level, a sharp rally took place to £27 10/-. During the closing days of the year the market was very quiet, demand had fallen off altogether and consumers were on the whole reported to be well covered: on the other hand, there was no pressure to sell, and at the end of December, as was the case during the whole year, the unsold stock of metal in the country was a negligible quantity.

The Spelter Convention.

The restriction imposed on production during the last four months of 1913 was withdrawn on the 1st January, 1914. The immediate result of this, combined with a general falling off in consumption, was a heavy increase in the stocks of metal held on the Continent. A fresh restriction was, therefore, imposed in April and this time finally agreed at 15%, the effect of which

would no doubt have been felt on the market during the last six months of the year. Since the outbreak of the war, however, the Convention has *ipso facto* been dissolved. The dissolution or not of the German Syndicate has, we understand, yet to be decided upon, though some report it to have been definitely renewed until March, 1916.

The Stocks of Spelter on the Continent controlled by the Syndicate and as published by them at the end of each month were for the first six months as follows:

	Jan.	Feb.	March	April	May	June
Tons	88,106	62,448	73,712	84,308	89,343	90,070

Remelted Spelter.

Conditions during the first seven months of the year may be described as normal: supply was perhaps rather more plentiful and the price, therefore, a little easier as compared with other qualities, but at no time did the margin extend to more than 20s. under the price of Virgin Spelter. Over the last five months of the year business in re-melted shrank to the smallest dimensions because not only was production almost entirely cut off in consequence of the war, but consumption was practically suspended as a result of the poor conditions prevailing in the galvanizing trade.

The highest price was touched in late August, when about £30 was realized, the lowest in May at £20 5/-, the value at the close of the year being about £20 a cwt. British port.

Hard Spelter.

The low prices ruling during the first months of the year for Virgin Spelter were not suffered to the same degree by Hard Spelter, and the margin between these two qualities was consistently small. This position was rather accentuated in May, June and July, when a strong Continental demand developed, the supply at the same time falling off owing to the slackness in the galvanizing industry.

Since war broke out little business has been possible, and the market has been extremely dull. The position, however, has been fairly well balanced, for on the one hand supply, as above mentioned, has been small, whilst on the other hand shipments for the Continental market have been unpracticable.

Highest	£28	0	0	at makers' works.
Lowest	18	0	0	at makers' works.
Close	17	10	0	at makers' works.

Production.

We regret our inability to issue our six

tomary statistics nor, under the circumstances, do we feel competent to make a reliable estimate. During the first quarter of the year smelters were unrestrained and ore, being plentiful, there is little doubt that production was on a very large scale. The reduction of 15% imposed by the European Convention in April was just beginning to have some effect when war broke out. Since then, in Belgium the industry has been brought to a standstill, whilst in all the other Continental producing countries it has no doubt been severely hampered for want of labor. In the U. S. of America for the first six months the output was heavy, but during the remainder of the year a certain falling off was apparent. Generally speaking the supply has throughout the year always been either equal to or greater than the demand.

Zinc Ore.

The supply has been sufficient to meet all requirements, though some falling off in the shipments of concentrates to Europe was noticeable during the first six months of the year in consequence of the low price of Spelter. Shortly after the outbreak of war large quantities originally destined for consumption in Germany and Belgium were diverted and landed in this country. Further shipments of concentrates have been practically suspended.

Zinc Sheets.

For the first seven months of the year, whilst normal conditions prevailed, this market was in a very depressed state; consumption was on a comparatively low scale and zinc rollers seemed willing to make almost any sacrifice in order to effect sales. The price during this period gradually declined from £25 15/- to £25 10/- l.o.b. Nearly all our requirements in this commodity are furnished by Belgian and German works, so with the outbreak of war our usual sources of supply suddenly dried up. The demand for sheets has, however, at no time been at all pressing and our small needs since the war have been readily met by the United States of America. Since August, the imports into this country have fallen off a full 30%. The price since the war has ruled consistently high and, in fact, excessive when compared with that of virgin spelter, the difference averaging about £12 to £14 per ton. But then, outside of Belgium, Germany, and France, rollers of zinc sheets are few and far between, and under these circumstances we were fortunate

in not having had a heavy consumption to provide for

Highest,	at London	144	0	0	in late August.
Lowest,	"	124	10	0	in early July.
Closing,	"	143	10	0	at end of Dec.

Consumption has undoubtedly fallen off. In zinc sheets conditions have been bad throughout the year and demand exceptionally poor. In galvanized iron also there has been a marked falling off, and as early as April the Association was obliged to enforce a reduction in output on all affiliated works; the export market has suffered considerably in consequence of the war as may be seen from the figures we give below. Shipments of galvanized iron from this country were for a time prohibited by the Government, but the prohibition was withdrawn early in September. Similar depression existed in the brass trade during the first seven months of the year, but the heavy orders since given out for war material have enabled this industry to make a good recovery.

We commend to your notice the following statistics.—

Exports of Galvanized Iron from the United Kingdom	1914	566,691 tons
Exports of Galvanized Iron from the United Kingdom	1913	762,194 "
Exports of Galvanized Iron from the United Kingdom	1912	658,680 "
Imports of Spelter into the United Kingdom	1914	115,731 tons
Imports of Spelter into the United Kingdom	1913	145,004 "
Imports of Spelter into the United Kingdom	1912	137,258 "
Imports of Zinc Sheets into the United Kingdom	1914	12,482 tons
Imports of Zinc Sheets into the United Kingdom	1913	18,768 "
Imports of Zinc Sheets into the United Kingdom	1912	20,346 "
Amer. Exports of Spelter	1914	10,000 tons
"	1913	17,210 "
"	1912	12,866 "
Amer. Exports of Zinc Ore to Europe	1914	9,400 tons
Amer. Exports of Zinc Ore to Europe	1913	17,713 "
Amer. Exports of Zinc Ore to Europe	1912	17,815 "
Amer. Imports of Spelter	1914	500 tons
"	1913	5,407 "
"	1912	9,554 "

The United States of America.—The market in January after opening at 5.15c E. St. Louis with rather a weak tone, developed favorably on some improvement in the general business situation, touching 5.35c by the end of the month. In early February the price was maintained, but later in that month and during March gave way to 5.15c

on a complete relaxation of the buying movement. The accumulation of stocks in spite of a reported curtailment in output was a depressing influence. In April, May and June the feature of the market was a general condition of stagnation, and a further decline ensued, the price at the end of June being carried down to 4.80 cents. In July some improvement occurred which in August developed strongly as a result of the export war demand in Europe, Great Britain buying large quantities to replace her Continental supply. Producers were not slow to take advantage of the position, and the price advanced rapidly to 6.0c and as high as 6.15c was reported paid. In September, however, the special demand being satisfied, and with American consumers still indifferent, the market sharply reacted, and prices declined to 4.95c E. St. Louis. By the middle of October 4.75c was reached, but a fair recovery was made on the news of the closing down of the Butte and Superior Mines: at the same time there was a renewal of the buying movement in England. The rise, however, was not maintained, and the price receded again to 4.80c in early November. Later on in this month, and during December, in spite of the poor condition of home consumption, the market steadily advanced to 5.60c: some manipulation was apparent, but the recovery was due chiefly to European buying. Up to the end of the year though business was dull, the advance was maintained, and the tone at the close was decidedly firm. Stocks at the end of June were returned at 57,000 tons, but during the second half of the year these were no doubt largely drawn upon to meet the export demand, and at the end of December were variously estimated at from 25,000 to 30,000 tons.

Highest East St. Louis	1914	6.15c
	1913	
Production	32,044 tons	308,499 tons
Lowest East St. Louis	1914	4.75c
	1913	
Exports to Gr. Britain (est.)	35,000 tons	4,200 tons

The outlook is very obscure, and under such trying circumstances, with the future so very problematical, it is not possible to forecast with any degree of accuracy the course of the spelter market during the coming year. Under present conditions the market is narrower and so lends itself more readily to manipulation, therefore wider

movements in price and more frequent fluctuation may be expected. Furthermore, the market will be free from the controlling influence of the German Syndicate, and once more British consumers will be free to bargain for their supplies with various sellers without having to submit to the German domination which has dictated prices to them for the past six years.

With regard to supply and demand, on which the future of the market depends, we consider that it is the question of demand which will prove to be the determining factor in the situation. Consumption, so long as the war lasts must depend very largely on the war demand, for ordinary trade requirements can only be small. The economic situation throughout practically the whole of Europe strained as it has been almost to breaking point, can scarcely be expected to improve for some time to come; the belligerent countries it must be remembered are the leading money-lending countries of the world, borrowing will not be easy, and from the financial point of view alone it is hardly possible that much, if any, recovery can take place in general trade either during the continuance of the war or for some time after. The process of recuperation, considering how enormous is the destruction and waste, must be slow. Turning to output there is no doubt that this can be substantially increased in producing countries other than Germany and Belgium, and the higher price obtainable will act as a stimulant in this direction so long as the market will take the extra quantity and pay the price. During the last four months there has been a sufficient supply of spelter to meet all requirements, so why should there not be enough during the next twelve months when production can be increased and consumption is more likely to remain stationary.

In the present situation we think that £27 might be considered a fair price for spelter, and we look for the market to fluctuate either side of that figure. Any undue rise would have an adverse influence on the ordinary trade demand and reduce that consumption to a minimum, but on the other hand the maintenance of a really low level of price would appear to be quite impracticable under such conditions as are likely to govern the market in the coming year.

TOPICAL TALKS ON IRON.

XXIII. How Materials are Sold; Coke and Ore.

The iron and steel industry is really a collection of trades, and so there are different selling methods in the different commodities from the raw materials to the most finished products. While there has been a great deal of "vertical integration" there has not been enough to eliminate any important market. Twenty years ago the large steel interests bought a large part of the pig iron they used, while now they buy very little indeed, but there are small steel interests that buy all their pig iron. Again, the large steel interests are all very well provided with ore, but a few at least of those tributary to the Lake Superior region are both buyers and sellers of ore. Certain mixtures are requisite and a consuming interest may not have all the ores desired, but may be able to spare large tonnages of certain grades.

Starting with Connellsville coke, the outstanding feature is that methods of buying and selling change more or less from year to year, as one style or another has the vogue. The variations involve the period of delivery, the manner of determining the quantity and the manner of determining the price. The time of delivery ranges from practically spot delivery, through spot shipment, prompt shipment, and delivery over a week, month, quarter, half year, year or period of years. A distinction is to be made even between spot delivery and spot shipment, as a shipper sometimes finds a consignment rejected or the order cancelled when the consignment is in transit and may sell the coke at a cut price to another and nearby consumer in order to avoid loss in freight. Sales for very short periods, under a month, are always of definite tonnages, but for a period of a month a "requirement" basis is not altogether uncommon, while for longer periods the "requirement" contract is the common one, i.e., the coke to be furnished is the quantity the blast furnace or group of furnaces actually needs. A furnace is normally operated to produce practically its maximum tonnage of pig iron, but the quantity of coke consumed varies somewhat according to the working of the furnace and the character of the coke and ore. It would be a hardship

upon the furnace to require it to accept delivery of a precise tonnage day by day or week by week, since sometimes there would be not enough and at other times there would be too much, and rehandling and storage of coke is injurious. The most striking feature of the requirement contract, however, is that it automatically suspends or cancels itself if the furnace goes out of blast. This feature may seem to involve a hardship to the seller of the coke, but the essence is that one has a furnace for the purpose of operating it and the greater hardship is upon the owner, in having to blow it out. The awkward feature is that if the coke has been sold at a high price and the pig iron and coke markets decline the furnace may be disposed to blow out and the coke seller may prefer to reduce the price than lose altogether the remainder of the sale, when as a matter of fact he does not know whether or not the furnace would remain in blast if the price were not reduced.

Occasionally efforts are made by coke sellers to modify the terms of the "requirement" contract whereby, in the event of the furnace becoming idle the remaining tonnage would not be canceled, but would be merely deferred as to delivery. While this arrangement has sometimes been written into contracts it has not become general by any means.

In the matter of price there are two styles, one involving a flat price and the other a price to be adjusted monthly according to the price of pig iron. In such sliding scale contracts the average quoted price of Bessemer or basic pig iron at valley furnaces is most commonly taken, but some furnaces contract against their own realized prices. There are two general forms of sliding scale contracts, the ratio and the differential. In the former, the price for coke is a certain fraction, say one-fifth, one-sixth or one-seventh, the price of pig iron, a net ton in coke and a gross ton in pig iron, while in the latter there is a fixed price for coke when pig iron is at a certain level, and an advance of so many cents in coke for every dollar that pig iron advances. In the ratio contract it is not uncommon to have the ratio

vary, the fraction being smaller when pig iron is low and larger when it is high. One might suppose the alignment should be the other way, but these contracts are based upon actual experience of coke and pig iron fluctuations, and that experience shows that coke fluctuates more widely than pig iron. To use convenient figures, if coke is \$1.75 and pig iron \$14, coke being one-eighth of pig iron, if pig iron advances to \$16 coke is likely to advance to a higher level than \$2.00.

It is very seldom indeed that a coke contract is made for a period of more than a year at a flat price.

Lake Superior ore is customarily sold at Lake Erie dock, the price including the rail freight to dock and the lake freight to the lower port. The prices ordinarily quoted on Lake Superior ore are merely base prices, not net settling prices. There are four base prices, for Mesabi range ore or for "Old Range" (Marquette, Menominee, Gogebic and Vermilion) and in each case for Bessemer or non-Bessemer. The standard in Bessemer is 55% iron and in non-Bessemer 51½%, the analysis being of ore in its natural state, not with the moisture evaporated at 212°. When no specific reference is made, the "iron content" of a Lake Superior ore is supposed to be the iron content in the natural state. The percentage of iron when the ore is dried at 212° is a matter of importance to the furnace manager, since the moisture in different ores varies by several per cent., and the

iron content analyzed in the dry state is frequently spoken of as "metallic iron" a term certainly not descriptive, but well apprehended in the trade.

The base price being fixed, the ore actually settled for on a unit basis, the price being higher or lower than the base price according to the iron content. Within certain limits the price varies directly, but particularly lean ores involve an extra penalty and particularly rich ores an extra premium, and the systems used for computation are usually complicated. A straight unit basis, without the buyer knowing approximately what iron content he was to receive, would be entirely inadmissible, because the part of the ore that is not iron is an encumbrance, involving freight to furnace and coke and limestone for its removal.

Bessemer ore is usually regarded as ore containing not over .045% phosphorus, but in actual practice there is a scale of premiums and penalties for phosphorus above and below this standard. The Bessemer iron to be made should not contain over .10% phosphorus, hence an ore with .045% phosphorus would be non-Bessemer if low in iron, but a good Bessemer if particularly high in iron.

While it is popularly supposed that iron content, and phosphorus content in the case of Bessemer ores, are the main price determining element, the fact is that nearly all ores are subject to special negotiation according to their other characteristics.

IRON AND STEEL.

THE SITUATION.

Iron and steel market developments in January may be classed as favorable or unfavorable according to the viewpoint, the expectations that had been entertained. There was, of course, a complete reversal of sentiment in November and December. Prior to November 1st, for several months previous indeed, the trade outlook was altogether unsatisfactory. Conditions were going from bad to worse, and once a stage was reached when conditions were worse than they had ever been before in an industrial depression, except perhaps for the extreme times in the depression of the nineties, the trade had nothing upon which it could count and the sentiment was one of hopelessness. It could not be said that conditions were bound to improve because they could become no worse. Week by week, in September and October, they were showing that they could grow worse.

About the beginning of November a "change in sentiment" occurred and this in due course was followed by heavier buying. The trade at once reversed its viewpoint and began to speculate upon how far the improvement would go. December gave such a good account of itself that in many quarters very high hopes were raised for 1915.

It depends entirely upon what the hopes were on January 1st whether the developments of January should be regarded as favorable or unfavorable. There has been a distinct and further improvement in steel trade conditions, but as conditions had previously broken all records for badness, there are those who assert that trade has simply improved to a normal stage of extreme dullness, and may halt at that level. Others, probably the majority, feel that there is no reason why the improvement should halt at this point, and rather expect it to continue indefinitely, though at a relatively slow pace.

The January Movements.

Of contracting for finished steel products there has been relatively little in January, which is a normal thing for the first month of a quarter. The contracting for the present quarter was done chiefly in December. There has, however, been some contracting for second quarter. This has probably been limited and is not in accordance with the

announced program of the mills, that being to obtain somewhat higher prices, by \$1 or \$2 a ton, than has obtained in the first quarter contracting.

Of specifying, the placing of actual shipping orders, there has been at least as much in January as in December, and probably more. This is despite the fact that unusual inducements were offered in the case of most products for buyers to place their specifications at that time.

In prices the general trend during January has been towards stiffness. At the close of December the price of 1.05c for bars, plates and shapes for early specification was withdrawn, the market being called 1.10c. It is possible this minimum has not been absolutely adhered to, but it has been about as well maintained as such prices usually are. At the close of January most of the mills announced a prospective advance in these products, holding the 1.10c price open for specification during February, but fixing 1.15c as the level for specifications in March and 1.20c for the second quarter. This represents an effort to make the calendar effect the advances and at the same time brings the greatest conceivable pressure upon buyers to get in their specifications early. The situation has the advantage of leaving it that if conditions do not prove as good as expected there will be no spectacular breaks. If 1.15c does not become the market in March no decline will be represented, merely the failure of an advance to materialize.

Effective January 11th the wire mills announced an advance of \$1 a ton, making nails \$1.55, base. The large buyers had been covered, apparently, to April 1st, but in most cases at least not in the form of the usual contract, but rather by actual specifications, with the privilege guaranteed the buyer of being allowed to change the specifications before shipment would be undertaken.

In galvanized sheets a sharp upward movement occurred, due to the altogether phenomenal advance in spelter, to a level of almost 8.00c, East St. Louis. The majority of mills, indeed, withdrew prices altogether, but at the close of the month there were sellers at 3.00c, for prompt shipment, and a few, apparently, at 2.90c. Until after the middle of the month the openly

IRON AND STEEL.

quoted market was 2.75c, but some contracts at least had been accepted at \$2 a ton less, while some small prompt lots were sold at \$3 a ton less. If mills quote 2.90c to 3.00c on galvanized sheets, with spelter even at 7½ cents, it means that they are absorbing part of the advance themselves when they really had no margin upon which to make such an absorption.

Trends in the Trade.

The trends in the trade are all favorable. Buying is increasing, though very slowly, production is increasing slowly, after a sharp increase early in January, and prices

are firming up; strictly regarded they may be said to be advancing.

Towards the close of 1914 pig iron production dropped to a rate under 20,000,000 tons a year, or to about 55% of the full capacity under ordinary conditions. From January 1st to February 1st there was an increase in the rate of pig iron production by steel interests of about 22%, but no increase on the part of merchant furnaces. The total production on February 1st was at the rate of about 20,800,000 tons a year, the merchant furnaces, including the charcoal stacks, producing at the rate of about 6,000,-

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

— No. 2 fdy —											
Bessemer, Basic, No. 2 fdy, Basic				No. 2X fdy, Cleve-		Chi-	Birm-	Ferro-	Fur-		
Valley				Phila.	Phila	Buffalo	land.	cago	ingham.	ese.*	nace
1913—											
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. .	17.20	16.14	16.60	17.50	17.81	*16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept. .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. .	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.18	50.28	2.10
Nov. .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. .	14.95	12.83	13.38	14.75	14.98	13.92	13.76	14.83	10.50	47.00	1.77
Year ..	16.26	14.77	14.87	16.22	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00†	1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70
Oct. .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65
Nov. .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60
Dec. .	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60
Year ..	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	75.80	1.72
1915—											
Jan ..	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55

* Contract price, f.o.b. Baltimore; † Prompt pt. f.o.b. Connellsville ovens

‡ Spot shipment; no contract market.

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1000 tons annually and the steel interests producing at the rate of about 14,800,000 tons annually.

Production of steel is estimated to have been at an average rate of not more than 35% capacity during November and December. Early in January there was a sharp increase, and by February 1st the average rate was fully 50%, the January production averaging about 45% of capacity. Prospects are that the increase will continue, but the average trade estimate is no more favorable than that a rate of 60% may be reached March 1st and a rate of 70% April 1st.

There may be a few who expect a somewhat more rapid increase but there are others who expect little further increase. Their analysis is that the extremely low

rate of producing and shipping late in 1914 represented a drawing upon stocks by buyers and that as this could not be continued longer it was necessary for shipments to increase, and this, with a very slight increase in actual consumption, caused the sharp increase in mill activity. They assert that without a further increase in actual consumption there will be no further increase in mill activity, and they regard it as yet to be proved that consumption will increase.

Railroad buying has been in evidence, but the buying indicates only that the railroads are providing for absolute necessities. They have bought rails and they just buy some rails every year. Their purchases individually have been running a trifle heavier than for 1914, but decidedly lighter than the aver-

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

	Wire Cut				Sheets		Tin		Composite	
	Shapes.	Plates.	Bars.	Pipe.	Wire.	Nails.	Black.	Galv.	plate.	Finished steel.
1913—										
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.02	3.47	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	1.7646
April	1.45	1.45	1.40	79 $\frac{3}{4}$	1.60	1.80	1.70	2.35	3.45	1.7743
May	1.45	1.45	1.40	79 $\frac{1}{2}$	1.60	1.80	1.70	2.35	3.40	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	1.7600
August	1.45	1.44	1.40	79 $\frac{3}{4}$	1.47	1.67	1.60	2.20	3.25	1.7400
September .	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	1.6779
November .	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	1.5558
Year	1.42	1.41	1.38	79 $\frac{3}{4}$	1.50	1.70	1.66	2.21	3.28	1.7241
1914—										
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	1.5394
February ...	1.25	1.21	1.22	79 $\frac{1}{2}$	1.40	1.60	1.60	1.95	2.95	1.5794
March	1.21	1.18	1.20	79 $\frac{1}{2}$	1.40	1.60	1.60	1.95	2.95	1.5638
April	1.18	1.15	1.15	79 $\frac{1}{4}$	1.40	1.60	1.60	1.90	2.89	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	1.4805
August ...	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	1.5421
September .	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	1.5236
November ..	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	1.4769
December .	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	1.5182
1915—										
January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	1.4554

IRON AND STEEL.

age of the past ten years. In cars the orders are still small. Contracts have been placed for track material, including spikes, tie plates, bolts, etc., but these are largely a matter of form, seeing that specifications against them have thus far been very light.

Export trade seems to have kept up to the average of October and November, or at approximately the low rate that obtained in the seven months of 1914 before the war. While the volume has not materially changed since before the war the destinations are largely different. There is not much doing yet with the neutral countries.

Pig Iron.

January has been distinctly between movements. The buying movement of late in 1914 had played out and there was no

occasion for a fresh movement. Orders have been taking deliveries very well, conditions being entirely satisfactory in that respect. Prices have undergone considerable change for three months. There is no room for declines, as prices since then have reached a level which is practically profitless for the best positioned producers, and those are the only ones that are in operation. Production and consumption have about balanced and both are at a very low level. Even a very moderate increase in consumption would quickly cause at least fractional advances, as idle producers can hardly be tempted into that at present prices.

January (1915)	13.03	+ 5.0
February	13.08	

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908.

Quarter.	1914.	1913.	1912.
1st	\$17,994,381	\$34,426,801	\$17,826,973
2nd	20,457,596	41,210,813	25,102,265
3rd	22,276,002	38,450,100	30,063,512
4th	10,933,170	23,036,749	35,185,557
Year . . .	71,661,149	137,123,363	108,178,307
	1911.	1910.	1909.
1st	\$23,519,203	\$37,616,876	\$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year . . .	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,022,857	3,787,607	3,706,643

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
1912—	%	%	%	Tons.
January 1913	98	89	— 9	—104,796
February ..	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September ..	82	74	— 8	—119,683
October ...	87	74	—40	—490,018
November ..	70	50	—11	—117,420
December ...	50	40	—10	—114,209
January 1914	55	83	+28	+331,572
February ..	67	105	+38	+412,704
March	72	40	—32	—372,615
April	65	35	—32	—376,757
May	62	37	—25	—278,908
June	63	66	+ 3	+ 34,637
July	64	75	+11	+125,792
August	67	72	+ 5	+ 54,742
September ..	62	54	— 8	—125,664
October ...	55	28	—27	—336,570
November ..	45	32	—13	—166,705
December ...	48	82	+34	+512,051

industry, hundreds of mills were idle, or only partly employed. About one-third of the mills remained idle until the end of the year, and those which restarted were not wholly employed. But employers have taken the measure of the situation, and with the aid of an organization so excellent as to be the wonder of those old enough to recall the suspicions and antagonisms of twenty years ago, they are now essaying, with a fair prospect of success, to so adjust the trade that there shall be an approximate, and if possible settled, return to remunerative trading. As an instrument in this achievement the Tinplate Conference is destined to play no inconspicuous part. There are three cardinal principles in this output control scheme:—

(1) A period is to be taken, over which the maximum output at the various works will be ascertained.

(2) A proportionate amount of the whole output of the trade is to be allotted to each works.

(3) Those works exceeding the agreed output are to pay into a pool, and those turning out a lesser quantity will receive payment from the pool.

Fortunately for the Conference and its promoters, the scheme has passed its experimental stage. The control machinery had been in effectual operation some time when the war broke out, and its efficacy had been thoroughly established.

Although the total exports for 1914 show a drop as compared with the total in the previous year, it must not be overlooked that the overseas trade for the first six months was probably a record for any corresponding period in the annals of the industry, but prices were unremunerative; so much so that when the Conciliation Board met in June the chairman, Mr. F. W. Gibbins, announced that the profit and loss conditions were probably worse than at any previous period. Even then, however, the output control scheme, which was restricting the make by 10 to 15 per cent. of the ascertained capacity of the mills, was beginning to tell, and there was a confident expectation that by September a thoroughly healthy condition would be reached. The Tinplate Conference therefore resumes its operations under excellent auspices, although too much must not be expected from it while the seaborne trade remains under the restrictions now prevailing owing to the war.

CAR BUYING.

Freight cars ordered:

First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	8,000	
April	10,000	
May	10,000	
June	15,000	
July	7,000	
August	3,100	
September	95	
October	1,725	
November	550	
December	1,150	
Year, 1914		80,000
January, 1915	3,300	

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1913—	Pig iron.	Rails.	Tin Plates.	Total*
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	36,274	396,656
Sept. ..	106,525	26,283	36,572	394,849
Oct. ..	99,588	40,625	40,733	435,534
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,354
Year	1,124,181	500,117	494,497	5,049,090
1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct. ...	47,188	37,005	26,950	263,834
Nov. ...	49,666	16,181	30,942	240,617
Dec. ...	31,705	16,315	30,254	212,667
Year	90,405	435,440	435,497	3,977,468

* Includes scrap, pig iron, rolled iron and steel cast, and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

IRON AND STEEL.

CONNELLVILLE COKE IN 1914.

The Connellsville "Courier" reports that the shipments of coke from the Connellsville and lower Connellsville region in 1914 amounted to 14,075,638 tons of 2,000 lbs. This is a decrease of 30% from the 20,097,901 tons reported for 1913, while the decrease in pig iron production in the country at large was only 25%. The showing, however, is not particularly bad for the region seeing that, as is well known, Connellsville is not expected to keep up with the pig iron industry, because the steel works are gradually adopting the by-product process, making coke at their blast furnace plants from shipped coal, some of which comes from the Connellsville region, while more is likely to come in the future.

In 1906, as a matter of fact, Connellsville coke production reached a stage at which it may be considered practically stationary, at about 20,000,000 tons in a really good iron year, and less in the "off" years. The production in 1906 as reported was only a few hundred tons under 20,000,000, while 1912 showed a few hundred tons above that mark, and 1913 exceeded it by about a hundred thousand tons, or one-half per cent. These were the three largest years in Connellsville coke shipments.

There is reason to expect that in future Connellsville coke production will fluctuate more widely than pig iron production, because the steel works will naturally be disposed to operate their by-product plants first, and draw upon Connellsville as a reserve. What the merchant coke operators in the Connellsville region should do, therefore, is to hold their coking coal in the ground in lean years and turn it into as much money as possible in the good years. To a slight extent only can they make a market for their coke by cutting prices. They have learned the lesson partially already, for according to the Courier figures the average realized value of the merchant coke shipped in 1914 was \$2.00 a ton, and 1914 was a very lean year in the iron trade, decidedly poorer than the average of the years 1909, 1910, 1911 and 1912, and the "Courier" figures for those years show an average realized of only \$1.93½.

Unless, however, there is a deepened boom in the industry, the average realized price on Connellsville coke shipments this year will be the lowest since 1904, with the possible exception of 1911, when the average is given at \$1.72. The important coke contracts made thus far for 1915 shipment do not average as high as \$1.75, that having been the maximum price obtained so far as we know. Whether the business still to be done, before the year is out, will raise or lower the average is something that cannot even be guessed at this time. There is now coke to be purchased, particularly for delivery over a few months, at considerably less than \$1.75, while on the other hand if consumption of coke should materially increase prices well above \$1.75 are likely to be realized. The alignment between coke capacity and pig iron capacity is such, we think, as to advance coke more rapidly than pig iron in case of larger demand all around, but the advance in coke would begin from a point considerably below \$1.75.

WELSH TINPLATE CONTROL.

(From "Iron & Coal Trade Review.")

After a year of vicissitudes unparalleled in its history, or paralleled only in the early nineties when the effects of the McKinley Tariff became fully apparent, the South Wales tinplate manufacturers have attempted a return to the conditions of trade control which existed when the great war broke out. This effort to restore a normal state of affairs has been heralded by the resuscitation of the "Tinplate Conference," the title given to the organization of employers formed in the early part of last year with a view to the systematic control of the output. This Conference, which is fully representative of South Wales tinplate makers, had successfully launched the scheme when, like a "bolt from the blue," the dramatic declaration of war paralyzed the industry.

When Germany's war policy forced this action upon us the whole of the tinplate trade was on summer holiday, and a long holiday it proved to be. For some time after the first shock, and until it became possible to attempt a rehabilitation of the

COMPARISON OF METAL PRICES.

	Range for 1913.		Range for 1914.		Range for 1915.		Closing.
	High.	Low.	High.	Low.	High.	Low.	Jan. 29.
Pig Iron.							
Bessemer, valley	17.25	14.25	14.25	13.75	13.75	13.75	13.75
Basic, valley	16.50	12.50	13.25	12.50	12.50	12.50	12.50
No. 2 foundry, valley	17.50	13.00	13.25	12.75	12.75	12.75	12.75
No. 2X fdy. Philadelphia. 18.50	14.50	15.00	14.20	14.50	14.25	14.50	14.50
No. 2 foundry, Cleveland . 17.75	13.50	14.25	13.25	13.25	13.25	13.25	13.25
No. 2X foundry, Buffalo.. 18.00	13.00	13.75	12.25	13.25	13.25	13.25	13.25
No. 2 foundry, Chicago .. 18.00	14.00	14.75	13.00	13.50	13.25	13.50	13.50
No. 2 South'n Birmingham 14.00	10.50	10.75	9.50	9.75	9.50	9.50	9.50
Scrap Iron and Steel.							
Melting steel Pittsburgh . 15.00	10.75	12.00	9.75	12.00	11.00	11.50	11.50
Heavy melt. steel, Chicago 13.25	9.00	11.00	8.00	9.25	8.75	8.75	8.75
No. 1 R. R. wrought, Pitts. 15.75	11.50	12.75	10.00	11.00	10.50	10.50	10.50
No. 1 cast, Pittsburgh 15.00	11.50	12.25	10.50	11.50	11.00	11.25	11.25
Heavy steel scrap, Pitts. 14.75	9.75	11.25	9.00	11.00	9.50	10.50	10.50
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh 1.65	1.35	1.35	1.15	1.15	1.15	1.15	1.15
Iron bars, Philadelphia . 1.67½	1.22	1.27½	1.12½	1.15	1.12½	1.12½	1.12½
Steel bars, Pittsburgh 1.40	1.20	1.20	1.05	1.15	1.10	1.10	1.10
Tank plates, Pittsburgh .. 1.50	1.20	1.20	1.05	1.10	1.10	1.10	1.10
Structural shapes, Pitts. . 1.50	1.20	1.25	1.05	1.10	1.10	1.10	1.10
Grooved steel skelp, Pitts.. 1.45	1.15	1.20	1.12½	1.15	1.12½	1.12½	1.12½
Black sheets, Pittsburgh.. 2.35	1.80	1.95	1.80	1.90	1.80	1.80	1.80
Galv. sheets, Pittsburgh.. 3.50	2.80	3.00	2.75	3.00	2.75	2.90	2.90
Tin plate, Pittsburgh 3.60	3.40	3.75	3.10	3.20	3.20	3.20	3.20
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.60	1.55	1.60
Wire nails, Pittsburgh 1.80	1.50	1.60	1.50	1.55	1.50	1.55	1.55
Steel pipe, Pittsburgh 19½	80½	19½	81½	81½	81½	81½	81½
Connellsville Coke at ovens.							
Prompt furnace	1.25	1.75	2.00	1.60	1.60	1.55	1.55
Prompt foundry	4.50	2.40	2.50	2.00	2.50	2.00	2.00
Metals—New York.							
Straits tin	51.00	36.75	65.00	28.50	37.00	32.80	37.00
Lake copper	17.75	14.50	15.50	11.30	14.75	13.00	14.62½
Electrolytic copper	17.65	14.12½	14.87½	11.10	14.50	12.80	14.45
Casting copper	17.45	13.87½	14.65	11.00	14.25	12.70	14.12½
Sheet copper	22.00	19.75	20.25	16.50	19.50	18.75	19.50
Lead (Trust price)	4.75	4.00	4.15	3.50	3.80	3.70	3.80
Spelter	7.35	5.10	6.20	1.75	7.87½	5.10	7.75
Cooksons antimony	9.87½	7.25	22.00	7.00	20.00	16.00	19.50
Aluminum, 98-99% 21.12½	18.50	21.50	17.37½	19.25	18.75	19.00	19.00
Silver	63¾	56½	59¼	47	49½	48½	48¾
St. Louis.							
Lead	1.12½	3.85	4.10	3.35	3.65	3.50	3.63¼
Spelter	7.17½	4.95	6.00	4.60	7.62½	5.55	7.56¾
Sheet zinc (fash. smelter) 9.00	7.00	8.75	7.00	10.00	9.00	10.00	10.00
London.							
Standard tin, prompts .. 202	166½	188	172	172	148½	172	172
Standard copper, prompts . 77¼	61¾	66¾	49	63½	57½	63¼	63¼
Lead	21½	15½	24	17½	19½	18½	18¾
Spelter	26¼	20¼	33	24¼	37	28½	37
Silver	293sd	25½sd	27¼d	22½sd	22½sd	22½sd	22½sd

COMPARISON OF SECURITY PRICES.

Range for 1913. Range for 1914. Range for 1915. Closing.

Railroads.	High.	Low.	High.	Low.	High.	Low.	Jan. 30.
Atchison, Top. & Sante Fe...	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100 $\frac{3}{8}$	89 $\frac{1}{2}$	96 $\frac{3}{8}$	93	94 $\frac{7}{8}$
Atch. Top. & Sante Fe, pfd.	102 $\frac{1}{2}$	96	101 $\frac{1}{4}$	96 $\frac{1}{2}$	98	96	96 $\frac{1}{4}$
Baltimore & Ohio	106 $\frac{1}{8}$	90 $\frac{1}{8}$	98	87	74	67	70 $\frac{1}{2}$
Canadian Pacific	266 $\frac{1}{4}$	204	220	153	168	15	170
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	40	46	41	44
Chicago, Mil. & St. Paul	116 $\frac{1}{4}$	96 $\frac{3}{4}$	107 $\frac{1}{8}$	84 $\frac{3}{4}$	93 $\frac{1}{2}$	86	88
Érie R. R.	32 $\frac{1}{2}$	20 $\frac{1}{2}$	32	20	23 $\frac{1}{2}$	21 $\frac{1}{2}$	23
Great Northern, pfd.	132 $\frac{1}{2}$	115 $\frac{1}{2}$	134 $\frac{1}{2}$	111	118	112 $\frac{1}{4}$	114 $\frac{1}{2}$
Lehigh Valley	168 $\frac{3}{8}$	141 $\frac{1}{4}$	156	118	130	120	137
Louisville & Nashville	142 $\frac{1}{2}$	126 $\frac{1}{4}$	141	125	121	112	117
Missouri, Kansas & Texas ...	294 $\frac{1}{8}$	184 $\frac{1}{8}$	24	8 $\frac{1}{8}$	12	7 $\frac{1}{8}$	11 $\frac{1}{8}$
Missouri Pacific	43 $\frac{1}{8}$	21 $\frac{1}{4}$	30	7	15 $\frac{1}{4}$	6 $\frac{1}{8}$	12 $\frac{1}{4}$
New York Central	109 $\frac{3}{4}$	90 $\frac{3}{8}$	96 $\frac{5}{8}$	77	92 $\frac{3}{4}$	84 $\frac{3}{4}$	96 $\frac{1}{2}$
N. Y., N. H. & Hartford	129 $\frac{1}{8}$	65 $\frac{1}{8}$	78	49 $\frac{1}{2}$	56 $\frac{1}{2}$	49	52 $\frac{1}{2}$
Northern Pacific	122 $\frac{1}{2}$	101 $\frac{1}{4}$	118	97	107	100	104
Pennsylvania R. R.	123 $\frac{3}{4}$	106	115 $\frac{1}{2}$	102 $\frac{1}{2}$	108	104 $\frac{1}{2}$	106 $\frac{1}{2}$
Reading	171 $\frac{1}{4}$	151 $\frac{1}{8}$	172 $\frac{1}{4}$	137	154 $\frac{1}{8}$	142 $\frac{1}{2}$	147 $\frac{1}{2}$
Rock Island	24 $\frac{7}{8}$	11 $\frac{5}{8}$	16 $\frac{5}{8}$	5 $\frac{1}{8}$	1		7 $\frac{1}{2}$
Southern Pacific	110	86	99 $\frac{1}{2}$	81	88 $\frac{1}{2}$	81 $\frac{1}{4}$	85 $\frac{1}{2}$
Union Pacific	162 $\frac{1}{4}$	157 $\frac{1}{4}$	164 $\frac{1}{2}$	142	122 $\frac{1}{2}$	115 $\frac{1}{2}$	120 $\frac{1}{2}$
Wabash	6	2	4 $\frac{1}{2}$		1 $\frac{1}{2}$	3 $\frac{1}{2}$	4 $\frac{1}{2}$

Industrials.

Amalgamated Copper	80 $\frac{1}{2}$	61	78 $\frac{1}{2}$	48 $\frac{1}{4}$	78	51 $\frac{1}{4}$	59 $\frac{1}{4}$
Am. Beet Sugar	50	19 $\frac{3}{4}$	33 $\frac{1}{2}$	19	30 $\frac{1}{2}$	34	38 $\frac{1}{2}$
American Can	46 $\frac{1}{8}$	21	35 $\frac{1}{8}$	19 $\frac{1}{2}$	31 $\frac{1}{8}$	25 $\frac{1}{8}$	29
American Can Pfd.	129	80	96	80	97 $\frac{1}{2}$	89	94
Am. Car & Foundry	56 $\frac{1}{8}$	26 $\frac{1}{2}$	54 $\frac{1}{2}$	42 $\frac{1}{2}$	48	44	45 $\frac{1}{2}$
Am. Cotton Oil	57 $\frac{3}{8}$	36 $\frac{1}{2}$	46 $\frac{1}{2}$	32	48 $\frac{1}{2}$	39	45 $\frac{1}{2}$
Am. Locomotive	44 $\frac{1}{2}$	27	47 $\frac{1}{2}$	26 $\frac{1}{2}$	48 $\frac{1}{2}$	24 $\frac{1}{2}$	32 $\frac{1}{2}$
Am. Smelting & Refining ..	74 $\frac{1}{4}$	58 $\frac{1}{2}$	74 $\frac{1}{2}$	50 $\frac{1}{2}$	64	56	62 $\frac{1}{2}$
Brooklyn Rapid Transit ..	92 $\frac{1}{4}$	84 $\frac{1}{4}$	94	79	88 $\frac{1}{2}$	84	87 $\frac{1}{2}$
Chino Copper	47 $\frac{1}{8}$	30 $\frac{1}{8}$	44	31 $\frac{1}{8}$	37	32 $\frac{1}{4}$	36 $\frac{1}{8}$
Colo. Fuel & Iron Co.	44 $\frac{1}{2}$	24 $\frac{1}{2}$	34 $\frac{1}{2}$	20 $\frac{1}{2}$	27	21 $\frac{1}{4}$	25
Consolidated Gas	142 $\frac{1}{8}$	125 $\frac{1}{8}$	140 $\frac{1}{2}$	112 $\frac{1}{2}$	122 $\frac{1}{2}$	117 $\frac{1}{2}$	119 $\frac{1}{2}$
General Electric	187	129 $\frac{1}{4}$	150 $\frac{1}{2}$	137	145 $\frac{1}{2}$	140	144 $\frac{1}{2}$
Interborough Metropolitan	19 $\frac{1}{8}$	12 $\frac{1}{8}$	16 $\frac{1}{8}$	10 $\frac{1}{4}$	17	10	12
International Harvester	111 $\frac{1}{2}$	96	113 $\frac{1}{2}$	82	99 $\frac{1}{4}$	92	98
International Steam Pump ..	18 $\frac{1}{2}$	4 $\frac{1}{2}$	9 $\frac{1}{2}$	3	7	3	5
Lackawanna Steel	49 $\frac{1}{8}$	29 $\frac{1}{8}$	49	26	50	28	29 $\frac{1}{2}$
National Lead	56 $\frac{1}{2}$	4 $\frac{1}{2}$	52	40	48	44	45 $\frac{1}{2}$
Ray Consolidated Copper	22	15	22 $\frac{1}{2}$	15	18 $\frac{1}{4}$	15	17 $\frac{1}{2}$
Republic Iron & Steel	28 $\frac{1}{2}$	17	27	18	22 $\frac{1}{2}$	19	19 $\frac{1}{2}$
Republic Iron & Steel, pfd.	92 $\frac{1}{2}$	72	94	75	78 $\frac{1}{4}$	72	79 $\frac{1}{2}$
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19 $\frac{1}{2}$	27 $\frac{1}{2}$	22	26 $\frac{1}{2}$
Texas Co.	132 $\frac{1}{2}$	89	149 $\frac{1}{2}$	112	135 $\frac{1}{4}$	131	135
U. S. Rubber	69	51	65	44	59 $\frac{1}{8}$	51 $\frac{1}{8}$	57
U. S. Steel Corporation	69 $\frac{1}{2}$	49 $\frac{1}{2}$	67 $\frac{1}{4}$	48	53 $\frac{3}{8}$	38	59 $\frac{1}{8}$
U. S. Steel Corporation, pfd.	110 $\frac{1}{4}$	102 $\frac{1}{4}$	112 $\frac{1}{4}$	103 $\frac{1}{4}$	109	102	107 $\frac{1}{2}$
Utah Copper	60 $\frac{1}{8}$	39 $\frac{1}{8}$	59 $\frac{1}{8}$	45 $\frac{1}{8}$	55 $\frac{1}{4}$	48	54
Va.-Carolina Chem.	43 $\frac{1}{8}$	22	34 $\frac{1}{8}$	17	22 $\frac{1}{8}$	15	24
Western Union Telegraph ..	75 $\frac{1}{8}$	54 $\frac{1}{4}$	66 $\frac{1}{8}$	53 $\frac{1}{8}$	64 $\frac{1}{8}$	57	65 $\frac{1}{2}$

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our composite finished steel. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1913—

June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79% to 80%	
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 1.40
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½% extra discount	
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
Dec. 31	Sheets	1.90	to 1.80

1914—

Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 2	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 3	Pipe	80% to 79½%	
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½% to 80%	
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30

1914—

May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50
June 9	Sheets	1.85	to 1.80
" 19	Bars	1.12½	to 1.10
" 19	Shapes	1.12½	to 1.10
July 20	Wire nails	1.50	to 1.55
" 21	Bars	1.10	to 1.15
" 21	Shapes	1.10	to 1.15
" 23	Plates	1.10	to 1.15
" 30	Tin plate	3.30	to 3.35
Aug. 5	Tin plate	3.25	to 3.40
" 6	Sheets	1.80	to 1.85
" 11	Sheets	1.80	to 1.85
" 11	Bars	1.15	to 1.20
" 11	Shapes	1.15	to 1.20
" 14	Tin plate	3.40	to 3.60
" 21	Wire nails	1.55	to 1.60
" 31	Sheets	1.90	to 2.00
Sept 16	Tin plate	3.60	to 3.30
" 26	Sheets	2.00	to 1.95
" 29	Bars	1.20	to 1.15
" 29	plates	1.20	to 1.15
" 30	Tin plate	3.30	to 3.25
Oct. 5	Sheets	1.95	to 2.00
" 7	Shapes	1.20	to 1.15
" 22	Sheets	2.00	to 1.90
" 27	Plates	1.15	to 1.10
Nov. 2	Pipe (extra 2½% removed)	80% to 81%	
" 5	Bars	1.15	to 1.10
" 5	Shapes	1.15	to 1.10
" 18	Sheets	1.90	to 1.85
" 24	Plates	1.10	to 1.05
" 24	Wire nails	1.60	to 1.55
Dec. 1	Bars	1.10	to 1.05
" 1	Shapes	1.10	to 1.05
" 3	Tin plate	3.25	to 3.20
" 4	Wire nails	1.55	to 1.50
" 28	Tin plate	3.20	to 3.10
" 30	Sheets	1.85	to 1.80

1915—

Jan. 1	Bars	1.05	to 1.10
" 1	Plates	1.05	to 1.10
" 1	Shapes	1.05	to 1.10
" 11	Wire nails	1.50	to 1.55

COMPOSITE STEEL

Computation for February 1, 1915:

Pounds.	Group	Price	Extension.
2 1/2	Bars	1.10	2.750
1 1/2	Plates	1.10	1.650
1 1/2	Shapes	1.10	1.650
1/2	Pipe (3/4-3)	1.90	2.850
1 1/2	Wire nails	1.55	2.325
1	Sheets (28 lb.)	1.80	1.800
1/2	Fin plates	3.10	1.550
10 pounds			14.575

One pound 1.4575

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	.....
Mar.	1.7590	1.4790	1.7646	1.5638	.....
April	1.7600	1.5206	1.7742	1.5337	.....
May	1.7510	1.5590	1.7786	1.5078	.....
June	1.6817	1.5794	1.7719	1.4750	.....
July	1.6701	1.6188	1.7600	1.4805	.....
Aug.	1.6394	1.6784	1.7400	1.5421	.....
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

Melting Steel. Sheet. Bundled No. 1 R. R. No. 1 No. 1 Heavy
Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1913—

May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sept.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21

1914—

Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sept.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.52	11.51	11.71	10.53	9.55

1915—

Jan.	11.40	9.20	10.75	11.25	10.30	9.00
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COMPOSITE PIG IRON.

Computation for February 1, 1915:

One ton Bessemer, valley	\$13.75
Two tons basic, valley	14.50
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.50
One ton No. 2X foundry, Buffalo	13.25
One ton No. 2 foundry, Cleveland	13.25
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry, Cincinnati	14.00
Total, ten tons	\$130.80

One ton \$13.080

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	.....
Mar.	14.425	13.581	16.775	13.843	.....
April	14.375	13.770	16.363	13.850	.....
May	14.242	13.917	15.682	13.808	.....
June	14.032	14.005	14.968	13.606	.....
July	13.926	14.288	14.578	13.520	.....
Aug.	13.874	14.669	14.565	13.516	.....
Sept.	13.819	15.386	14.692	13.505	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.07	.....
Year	14.005	14.823	15.418	13.520	.....

**UNFINISHED STEEL
AND IRON BARS.**

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv.— Phila. Pitts. Ch'go.
1913—				
Sep.	24.00*	25.00*	27.37	1.33 1.59 1.37
Oct.	22.50	23.25	26.50	1.32 1.54 1.27
Nov.	20.50	21.50	26.00	1.30 1.45 1.15
Dec.	20.00	21.00	25.25	1.25 1.37 1.12
Year	25.55	26.43	28.39	1.51 1.59 1.45
1914—				
Jan.	20.00	20.25*	25.75	1.24 1.35 1.11
Feb.	21.00	22.00	26.00	1.28 1.35 1.14
Mar.	21.00	22.00	26.00	1.28 1.35 1.15
Apr.	20.75	21.75	25.50	1.23 1.31 1.14
May	20.00	21.00	26.00	1.23 1.29 1.10
June	19.50	20.35	25.00	1.23 1.25 1.08
July	19.50	20.00	25.00	1.19 1.25 1.06
Aug.	20.17	21.03	25.25	1.18 1.25 1.07
Sept.	20.75	21.75	26.00	1.18 1.20 1.07
Oct.	20.00	20.70	26.00	1.14 1.20 1.01
Nov.	19.25	19.75	25.00	1.13 1.20 .96
Dec.	18.75	19.25	24.40	1.12 1.20 .91
Year	20.06	20.82	25.50	1.20 1.27 1.07
1915—				
Jan.	19.25	19.75	24.80	1.12 1.17 .97

* Premiums for Bessemer.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	\$10,329,388	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,444	10,428,773
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	12,521,102
October	14,249,598	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401
December ...	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals ...	\$157,674,394	\$201,271,903	\$249,656,411	\$289,128,420	\$294,435,060	\$184,922,971

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,998
April	132,790	93,285	100,911	117,921	228,149	267,313	259,689	161,952
May	91,543	64,041	109,808	135,306	178,589	307,656	242,353	139,107
June	92,996	69,770	114,724	120,601	174,247	273,188	243,108	144,003
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	114,790
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	86,599
September	114,819	76,732	97,641	119,155	181,150	248,613	213,057	96,476
October	123,170	85,766	110,821	129,828	186,457	251,411	220,550	147,293
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	140,731
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	1,430,925

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. ...	102,600	154,118	175,463	101,804
Feb. ...	94,820	129,693	188,734	112,574
Mar. ...	134,785	157,469	164,865	68,549
April ...	133,900	178,502	174,162	111,812
May ...	217,467	194,482	191,860	125,659
June ...	118,296	180,122	241,069	188,647
July ...	200,845	185,677	272,017	141,838
Aug. ...	175,183	178,828	213,139	135,693
Sept. ...	184,456	180,571	295,424	109,176
Oct. ...	172,459	202,125	274,418	114,341
Nov. ...	128,019	163,017	179,727	90,222
Dec. ...	148,902	199,982	223,933	.....
Totals	1,811,732	2,104,576	2,594,826	1,300,315

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,742	30,585
May..	42,569	23,347	15,949	28,728	28,169
June..	30,322	29,399	21,407	36,597	23,076
July ..	41,933	15,782	17,882	39,694	25,282
Aug..	36,879	10,944	20,571	18,740	28,768
Sept.	30,961	14,039	18,740	19,941	38,420
Oct..	31,455	21,035	25,559	20,840	22,754
Nov..	40,585	13,880	24,154	25,809	24,165
Dec..	31,575	19,665	21,231	26,452	.....
Totals	487,973	256,903	225,072	317,244	281,192

INDUSTRIAL LOSSES IN 1914, --- BUT 1915 OUTLOOK FAVORABLE.

The industrial losses in 1914 were perhaps the worst in history, and producers wonder that they were not even worse. In volume, the record of production was on a par with the panic year of 1908. In value the low record of 1908 was eclipsed. Losses in various branches of business in 1914 are summarized as follows by a trade authority: Decrease in 1914 from 1913:

Decrease
Per cent.

Coal output	20
Pig iron production	35
Locomotives	45
General manufacturing ..	25
Track construct., railroads	50
Equipment, passenger and freight cars	50
Building trade	30
Immigration	66
Foreign credit balance..	\$450,000,000

Commercial failures on a basis of total liabilities were about double what they were in 1913.

It is evident from the above table that there is plenty of room for expansion in 1915. In the last half of 1914 business conditions were much worse than they were in the first half and there are many branches of industry that have enjoyed little recovery since the first of the year. As an

example, the equipment companies are now turning more than 25 per cent of capacity and steel production is on a 45 per cent or a 50 per cent basis.

Manufacturers point out that the new year begins with the stimulus of a trade balance running in favor of this country at the rate of more than \$1,000,000,000 a year and a big exportable wheat surplus at low prices. The increase in winter wheat acreage, amounting to 13 per cent., and the certainty that larger acreages of all food stocks will be planted, are also factors to be reckoned with. It is certain that the European countries will not be able to plant their usual crops, which means a better demand for American products. Notwithstanding the loss in cotton, the yield to the farmers of the country last year aggregated a total of nearly \$10,000,000,000, which points to more freight for the railroads and an increase in business in general.

The expected growth in business will not be retarded by dear money, it is believed, everything indicating ease throughout the year.

The above is a summary of the arguments of business optimists who are looking for a substantial recovery. They admit that business has not reached large proportions as yet, but they believe better things are in store later on. —(Boston News-Bureau)

RAILROAD EARNINGS.

Beginning July 1, 1914, a new system was established, whereby the railroads, instead of reporting figures as given above, and then reporting in addition the "net revenue from outside operation" (boat lines, electric lines, cabs, etc.) must include such revenue with total operating revenue. With the fresh figures as reported under the new system are given figures for the month a year earlier, compiled in the same manner, for comparative purposes, the compilation being made by the Bureau of Railway Economics. The Interstate Commerce Commission discontinued its monthly reports with that for August, 1914.

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	\$1,183	\$837	\$346	\$1,124	\$785	\$339
August	1,244	856	388	1,175	789	386
September	1,257	854	403	1,182	781	401
October	1,314	891	423	1,169	786	383
November	1,180	884	397	1,023	732	292

TIN.

TIN IN JANUARY.

January opened with the tin market at 33½c for spot Straits, and showing a disposition to recover from the bad impression that had been made by the December statistics. These had shown that the American deliveries in December were only 1,900 tons, the smallest month's deliveries since the panic of 1907, and some 1,500 tons less than the average monthly deliveries in 1914, and which also were below the record of the three previous years; also that the visible supply had increased some 2,000 tons in December.

Following slight fluctuations the market was still 33½c on January 15th, but at that time the scarcity in London of spot tin caused by small stocks there and difficulties existing at the docks from congestion in discharging vessels, as result of war conditions, market advanced continuously each day, until it had reached 37c per pound for spot tin at the end of the month.

Throughout January, future deliveries, April to July, were always available at 1 to 2c per pound under the spot price, the difference at the close of the month in London being £11½ per ton or equal to 2½c per pound.

While the market has been a very interesting one, consumers have shown great indifference, refusing to buy futures even at the heavy discount obtainable, and confining their purchases to actual requirements, which were again proved small. The American deliveries for January were not much better than December, only 2,300 tons, and this resulted in another increase in visible supply on February 1st of around 500 to 1,000 tons. The increase would have been much larger, but London in January nearly doubled the average months' delivery of 1914 and more than doubled former years, the cause for which was large orders from the Continent which has been cut off from their usual supply of Banka tin.

This supply has been held up by the Dutch Government, and is now estimated to amount to over 10,000 tons held by them in Holland and at source of supply, Java. This stock does not figure in the general statistics until it is sold by the Dutch Government, but is a continued

menace to the market, although it must be remembered this accumulation may not be for sale for months to come.

It is now fully recognized that while the tinplate and solder trade has been for the past three months quite normal, there has been a great falling off in other trades using tin as an alloy or as their raw material, and which we would call for convenience sake the Engineering Trade.

In no other way can the small American deliveries be explained during the past

TIN PRICES IN JANUARY.

	New York.	— London —					
Day	Cents.	Prompts.			Futures.		
		£	s	d	£	s	d
1							
2							
3							
4	33.25	151	0	0	145	0	0
5	33.37½	152	0	0	145	10	0
6	33.37½	151	10	0	146	0	0
7	32.80	148	10	0	143	10	0
8	33.50	150	0	0	145	0	0
9							
10							
11	33.80	152	0	0	147	10	4
12	33.50	151	0	0	145	10	0
13	33.65	152	10	0	146	10	0
14	33.37½	151	10	0	146	0	0
15	33.25	152	0	0	145	10	0
16							
17							
18	33.87	154	10	0	147	0	0
19	33.87½	154	0	0	147	10	0
20	34.30	155	0	0	148	5	0
21	34.75	158	0	0	150	15	0
22	35.12½	160	0	0	152	0	0
23							
24							
25	35.75	165	0	0	155	0	0
26	35.62	165	0	0	157	0	0
27	35.75	167	10	0	156	0	0
28	36.00	168	0	0	157	0	0
29	37.00	172	0	0	160	10	0
30							
31							
Highest	37.00	172	0	0	160	10	0
Lowest	32.80	148	10	0	143	0	0
Average	34.296	156	11	0	149	5	0

TIN.

three months, and yet there are hardly any signs of return to normal conditions in this direction. The position of supply and demand has become extremely interesting, and for that reason we publish in this issue an analysis of the statistical situation and prospects made by a member of the trade. The figures are indisputable, but whether the conclusions intimated will be as unfavorable for the price of Tin in the future as this interest thinks, each reader can decide for himself.

The crux of the situation would seem to be how long the large accumulation of Banka tin will be withheld from market, and what and when is to be the recovery in American and foreign consumption.

ANALYSIS OF THE TIN SITUATION.

C. S. Trench & Co., in a market report under date of February 1st say:

The trade has been greatly puzzled to account for the recent heavy advance in the pig tin market. In the past two months although an increase has taken place in the visible supply, excluding Banka, of 3,000 tons, the market has advanced in that time £28 in London and 5¼c per pound in New York.

Two reasons have been given—1st, that it is a temporary manipulation made easy by the more or less excited temper of the average business mind caused by the war. 2nd, that it is based on a fundamentally sound and improving statistical situation which as time goes on will be demonstrated and become more pronounced.

If the former it can be dismissed as only a temporary matter—if the latter then it is of the greatest importance and worthy of the closest investigation.

With this view we have tried to examine the situation and have reached the conclusion that instead of an improving situation in stocks, supply and demand, exactly the opposite is to be expected, and we think those who will take the trouble to follow the figures we present will reach the same conclusion.

As a basis for the arguments which are to follow we beg to submit statistics of the world's production and consumption for the year 1913 as compiled by the Metallgesellschaft, as follows:

Production.

Straits	15,000
Shipped to Europe and America	60,000
Shipped to British India	1,174
China	1,174

Great Britain:

Production from domestic mines	5,300
Production from foreign mines	16,700
Germany	11,000
France	11,500
Holland (Banca)	15,174
Holland (Billiton)	2,245
Australia	4,870
China	6,000
Bolivia	500
	128,900

Consumption.

Great Britain	24,400
Germany	19,700
France	8,200
Austria-Hungary	5,200
Belgium	2,200
Russia	2,700
Italy	2,000
Switzerland	1,400
Spain	1,300
Scandinavia	1,600
Holland	250
Other European countries	1,200
U. S. of America	45,000
Other America	400
Australia	1,400
Africa	500
China	2,400
Other Asia	2,000
	124,000

Divided according to country, the above production may be observed as follows:

Straits	15,000
Bolivia	24,794
Banca and Billiton	17,416
China	6,000
Africa	5,180
Cornwall	5,000
Australia	4,870
	128,900

Countries producing for home consumption:

Bolivia	24,794
Africa	5,180
	29,974

This tin is sold in the following

England	19,700
Germany	11,500
France	1,200
	29,400

TIN.

Statistics of Germany and Austria-Hungary

	Germany.	Austria-Hungary.
Imports	14,261	4,214
Made in Germany	11,500	
	25,761	4,214
Exports Raw	6,437	1,961
Exports Mfg.	3,319	155
Total	9,756	2,116
Domestic Consumption	16,005	2,098
		16,005

Total Domestic Consumption 19,003

The two outstanding changes occasioned by the war to date so far as statistics are concerned, are the practical elimination of Germany and Austria as consumers and the Dutch Government as a producer. Germany and Austria have not stopped consuming and Holland has not stopped producing, but as to the former their importations have been interrupted, and as to the latter her exportations and sales have ceased temporarily.

If we eliminate from Statistics the 15,000 tons of Banca tin produced by Holland and the 19,000 tons consumed by Germany and Austria-Hungary, we have left 4,000 tons net available to the rest of the world over and above the amount heretofore available.

The 11,500 tons of tin in ore heretofore smelted in Germany, but which cannot now be sent there will go elsewhere—to England, to Australia, to the Straits—where there is ample smelting capacity. Hence, eliminating Germany and Austria as consumers, this 11,500 tons will be for sale in other markets—London and New York—in addition to supplies heretofore received by them, and will offset the quantity of tin raw and manufactured heretofore exported by Germany and Austria-Hungary to other countries which the rest of the world must now supply.

We have not deducted Billiton tin (2,200 tons per annum) from supplies, because Billiton tin is now being sent to the Straits to be smelted there, and will shortly appear in the Straits output. This production like Banca is controlled by the Dutch Government. If they are willing to have their Billiton tin smelted in the Straits why not their Banca tin also, should the need arise, rather than increase their stock held.

Either as Straits or as Banca the usual quantity may and probably will be sold, as well as an accumulation of about 4,000 tons in Holland and 8,000 tons in Java. When, and if it is sold, and Germany and Austria-Hungary can and do buy it, we will still have the surplus production of 4,000 tons above referred to compared to the situation before the war, while if they cannot participate in its purchase, then the total quantity available to the world outside of those countries in addition to the quantities heretofore consumed will be increased 19,000 tons per annum.

What have we got to offset this tin which the Allied and neutral nations will be called upon to absorb in addition to supplies heretofore taken? We have the increased usage, if any, occasioned by the war, but the war's requirements of tin are very small, while its injury to the normal requirements of peace is enormous. In the United States for example we have consumed since the war began an average of 800 tons per month LESS than the average of the same months 1911-12-13 or at the rate of nearly 10,000 tons less per annum, and the situation seems to be getting worse rather than better—vide December and January statistics.

Looking abroad we find the same condition: i. e., that London, Holland and Continental deliveries have decreased since the war at practically the same rate as in this country, accounted for by the exclusion of the Austro-German consumption. There is no increased consumption by other countries on account of the war; quite the contrary, in fact. The increased London deliveries simply represent the transfer to that market of the demand previously filled from the Continent.

So much for deliveries since the war. How about production? Straits shipments during these six months amount to 29,788 tons as against 32,205 tons August-January inclusive a year ago, a decrease of 2,417 tons, but it is to be noted that the entire decrease occurred in the month of August when shipments were embargoed by the outbreak of the war. Since then the Straits shipments have increased until they are now coming forward at a rate not only equal to but in excess of last year. February shipments are estimated at 6,500 tons.

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.

	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	
Mar.	16,682	15,694	11,432	16,989	
April	14,441	11,893	9,822	15,447	
May	15,938	14,345	13,710	17,862	
June	16,605	12,920	11,101	16,027	
July	16,707	13,346	12,063	14,167	
Aug.	16,619	11,285	11,261	14,452	
Sept.	16,672	13,245	12,943	14,613	
Oct.	14,161	10,735	11,857	10,894	
Nov.	16,650	12,348	14,470	11,483	
Dec.	16,514	10,977	13,893	13,396	
Average	16,404	13,207	12,377	14,907	

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,105
Feb.	4,147	4,290	5,260	4,660	6,520	
Mar.	2,877	4,510	5,150	4,810	4,120	
Apr.	4,025	3,140	4,290	4,400	4,930	
May	4,965	4,310	5,760	6,160	6,900	
June	4,120	5,050	4,290	4,820	5,870	
July	5,040	4,660	4,580	4,770	4,975	
Aug.	5,700	4,680	5,210	6,030	3,315	
Sept.	4,220	5,150	5,430	5,160	4,973	
Oct.	4,480	4,350	4,450	5,020	4,610	
Nov.	4,840	5,070	5,600	5,560	5,155	
Dec.	4,270	5,970	4,980	5,110	6,435	
	54,579	55,470	59,018	62,550	63,093	
Av.	4,548	4,622	4,918	5,213	5,258	

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	
Mar.	4,000	5,100	4,000	5,900	4,450	
Apr.	4,025	4,100	3,300	5,400	3,450	
May	3,600	3,400	4,250	3,750	3,800	
June	5,000	2,900	2,850	3,800	3,650	
July	3,800	4,300	5,150	3,900	3,900	
Aug.	3,700	3,800	4,300	3,600	2,900	
Sept.	3,300	4,200	3,600	3,100	3,600	
Oct.	3,350	3,500	3,850	3,700	3,700	
Nov.	3,800	3,100	4,200	2,800	2,600	
Dec.	3,600	3,700	4,050	3,100	1,900	
	45,350	44,300	49,500	43,900	41,700	
Av.	3,779	3,692	4,125	3,658	3,475	

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Jan.	Dec.	Jan.
Straits shipments	1915.	1914.	1915.
To Gr. Britain...	2,985	3,715	3,260
" Continent	295	400	775
" U. S.	1,920	2,320	1,200
Total from Straits	5,200	6,435	5,235
Australian shipments			
To Gr. Britain...	100	nil	325
" U. S.	nil	nil	nil
Total Australian	100	nil	325
Consumption			
London deliveries	3,104	2,464	1,634
Holland deliveries	34	58	1,208
United States*...	2,300	1,900	3,600
Total	5,438	4,422	6,442

Stocks at close of month

In London—			
Straits, Australian	3,308	3,009	4,209
Other kinds	375	531	†
In Holland	nil	nil	2,181
United States*...	1,771	1,386	1,834
Total	5,454	4,926	8,224

Afloat at close of month

To London	3,287	4,345	3,902
" Holland .. unknown		nil	183
" U. S.*	5,160	4,125	2,550
Total	8,447	8,470	6,635

	Jan. 31,	Dec. 31,	Jan. 31,
Total visible supply	1915.	1914.	1914.
	13,901	13,396	14,859

* Exclusive of Pacific ports. † Not reported.

TIN PRICES.

Average monthly price of Straits Tin in

New York.					
	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	47.74	34.30
Feb.	42.83	43.46	48.73	39.93	
Mar.	40.76	42.86	46.88	38.08	
Apr.	42.20	44.02	49.12	36.10	
May	43.10	46.42	49.14	33.20	
June	46.16	47.77	44.93	30.65	
July	42.96	44.75	40.39	31.75	
Aug.	43.45	45.87	41.72	30.59	
Sept.	39.98	49.18	42.47	32.70	
Oct.	41.21	50.41	40.50	30.39	
Nov.	44.13	49.90	39.81	37.50	
Dec.	44.97	49.90	37.64	33.60	
Year	42.68	46.43	44.32	35.70	

LEAD.

As to Bolivia: Exports from that country since the war have fallen approximately 50%—from about 12,000 tons to about 6,000 (January estimated) but production has not been affected to anything like the same extent. Heavy stocks have accumulated and with financial and shipping facilities available exports will shortly return to normal. February arrivals in England are estimated at 4,000 tons—double the usual quantity at all ports—English and Continental combined—and the product thereof must find a market exclusive of Germany and Austria.

Banca and Billiton we have already covered. The usual quantities of both will shortly be coming forward—are now coming forward.

Any way one looks at it there is not only as much **but more** tin available than before the war broke out—a great deal more.

In short it comes to this. The production and shipment of tin have not been interfered with except temporarily. The consumption is at the rate of minus 10,000 tons per annum in America and practically as much in Europe, being the quantity Germany and Austria-Hungary formerly took from the market in excess of their production, and a very large increase in the visible is inevitable.

It is safe to predict that production in 1915 will be not less than in 1913, viz.: 129,000 tons. Even supposing no Banca is sold and the quantity available to the Allied and Neutral nations is thereby reduced 15,000 tons compared to 1913, we will still have as already pointed out, (assuming the same consumption as in 1913) excess supplies of 4,000 tons. There was already an excess of 4,000 tons in 1913, which therefore in 1915 will become 8,000 tons. This on the assumption that we have the 1913 deliveries and no Banca.

But we will not have the 1913 deliveries—not by 20,000 tons if the rate we are going now in Europe and America is continued, and the surplus becomes 28,000 tons. If the Banca production of 15,000 tons is sold the surplus will be 43,000 tons. If on top of this the 12,000 tons of accumulated Banca is sold—but why go on. If one half of this takes place what will be the price of tin? Even granting that we overestimate the usual output of Bolivian ores

being smelted, and even granting that a substantial increase in American consumption from its present low rate is to take place, it is impossible to believe any Bull movement can be sustained on such an unfavorable statistical outlook.

LEAD IN JANUARY.

The month opened with the Trust price at 3.80c N. Y., which price had ruled unchanged throughout the previous month, December, but on January 12th was reduced \$2 per ton to 3.70c in consequence of the publication of the Government statistics, and its effect on buyer's minds.

These statistics showed that there was a phenomenal increase in the production of lead during 1914, the increase in the domestic output being 100,000 tons over any preceding year.

The production in 1914 compares with the previous year as follows:

	1914.	1913.	Alteration
Desilverized . .	312,257	250,578	+61,679
Soft Lead . .	199,527	161,300	+38,227
Total domes.	511,784	411,878	+99,906
Foreign			
desilverized	25,295	50,582	-25,287
	537,079	462,460	+74,619

The above figures do not include an estimated output of 12,850 tons of antimonial lead in 1914 as against 16,665 tons in 1913.

The imports of lead in ore and base bullion were less than half what they were in 1913 due to the strife in Mexico and consequently there was a decrease in the exports of lead of foreign origin of similar extent. But for the first time in 40 years there were large exports of domestic lead, the total for the year being estimated at 62,924 tons.

As the lead producers do not report the stocks of domestic lead it is impossible to estimate the consumption, but this much is known that the amount available for consumption in 1914 was 442,744 tons as compared with 419,463 tons in 1913 and 388,148 tons in 1912. It is impossible to believe that the actual consumption was as great in 1914 as in 1913, owing to the recession in all lines of industry, and there-

LEAD.

fore there must have been a heavy increase in surplus stocks and the total stocks at the close of the year were probably the largest on record.

The following is a comparison of the domestic production, the total production and the amount available for consumption since 1907:

	Production		Available for consumption.
	Domestic	Total	
1907	352,381	413,389	360,715
1908 ..	311,666	396,564	318,555
1909	352,839	446,901	368,664
1910 ..	375,402	470,272	379,196
1911 ..	391,995	486,979	385,319
1912	392,517	480,894	388,148
1913	411,878	462,460	419,463
1914	511,784	537,079	442,744

About the middle of the month there was a good demand, the advances in all other metals that was going on being reflected in a hopeful view that Lead was very cheap, and on a large business around January 20th to 22nd the price from Independents stiffened to 2½c over the Trust price. This made buyers more eager, and on January 28th the Trust advanced their price \$2.00 per ton to 3.80 New York, at which the market closed very firm, with indications that any change in the future is to be towards higher rather than lower prices.

LEAD (Monthly Averages.)

—New York*—			—St. Louis—		
1913	1914	1915	1913	1914	1915
Jan. 4.35	4.11	3.74	4.20	3.99½	3.55
Feb. 4.35	4.06	..	4.20	3.95	..
Mar. 4.35	3.97	..	4.21	3.83	..
Apr. 4.40	3.82	..	4.25½	3.70	..
May 4.36	3.90	..	4.22	3.81	..
June 4.35	3.90	..	4.21	3.80	..
July 4.37	3.90	..	4.25	3.75	..
Aug. 4.63	3.90	..	4.56	3.75	..
Sep. 4.75	3.86	..	4.62	3.67	..
Oct. 4.45	3.54	..	4.31	3.39	..
Nov. 4.34	3.68	..	4.18	3.58	..
Dec. 4.06	3.80	..	3.94	3.67	..
Av. 4.40	3.87	..	4.26	3.74	..

* Trust price

A feature of the situation has been the continued large exports of the metal. The exports of domestic Lead in 1914 were about 65,000 tons, this being the first year in a generation in which domestic lead has been exported. The movement is being continued although the refusal of the Government to allow statistics to be known until 30 days after they are made, prevent our giving what these exports amounted to in January.

LEAD PRICES IN JANUARY.

Day.	New York*. St. Louis.		London.
	Cts.	Cts.	£ s d
1 .....	..	..	..
2 .....	..	..	..
3 .....	..	..	..
4	3.80	3.62½	19 0 0
5	3.80	3.62½	19 2 6
6	3.78¾	3.60	19 0 0
7	3.78¾	3.60	19 0 0
8	3.75	3.60	18 15 0
9 .....	..	..	..
10 .....	..	..	..
11	3.75	3.60	18 15 0
12	3.70	3.55	18 12 6
13	3.70	3.55	18 12 6
14	3.70	3.55	18 12 6
15	3.70	3.53¾	18 10 0
16 .....	..	..	..
17 .....	..	..	..
18	3.70	3.53¾	18 10 0
19	3.70	3.51¼	18 10 0
20	3.70	3.51¼	18 10 0
21	3.70	3.51¼	18 10 0
22	3.70	3.52½	18 5 0
23 .....	..	..	..
24 .....	..	..	..
25	3.70	3.53¾	18 7 6
26	3.70	3.53¾	18 7 6
27	3.70	3.53¾	18 7 6
28	3.80	3.63¾	18 7 6
29	3.80	3.63¾	18 7 6
30 .....	..	..	..
31 .....	..	..	..
Highest ..	4.80	3.65	19 2 6
Lowest ..	3.70	3.50	18 5
Average ..	4.44	3.66	18 12 4

* Outside.

COPPER.

COPPER IN JANUARY.

The copper market in January has been a record of steadily advancing prices. Opening at 12.85c New York for Electrolytic, the market closed at 14.45c, or an advance in price of nearly 25 per cent from the decline that followed the outbreak of the war. A large business was done throughout the month on foreign and home purchases. In the case of the former caused by actual requirements and war orders, and in the case of the latter, partly from the same cause, but probably from the fear of having to pay higher prices. In spite of this good buying during the month there has been little if any improvement in the actual consumption for home requirements, but there has been an excited demand for brass for war requirements. Buying to avoid paying higher prices has been extended to buyers of manufactured copper, and some of the copper mills report that while these orders that have reached them have been very large, they find great difficulty in getting specifications.

The foreign demand and brass export orders have been a constant stimulative, and the producers have made the most of it, working not only on our buyers' fears, but also using the argument of output not being over 60 per cent of normal, and in some cases it is believed buying Standard copper in London to excite the foreign consumer.

A member of the trade analyses the statistical position as follows:

"From available statistics and estimates regarding the production of refined copper for the year 1914, from domestic sources and foreign metal received into this country for treatment, the total output is placed at 1,493,000,000 pounds. This compares with 1,615,067,000 pounds in 1913. On January 1, 1914, the surplus stock of marketable copper in the United States amounted to 91,438,867 pounds. The total available supplies of refined copper in this country in 1914 were therefore 1,584,438,867 pounds. Deducting exports, December estimated, supplies left for domestic consumption were 794,289,747 pounds, or at the rate of 66,190,812 pounds a month. Exports, part-

ly estimated, were 790,149,120 pounds.

"For the first six months of last year official statistics showed that 330,643,117 pounds of copper were delivered for domestic consumption, being at an average monthly rate of 55,107,186 pounds. After the breaking out of the war in Europe in August American consumptive demand fell off greatly, and for the last half of the year the quantity of copper consumed was much less than during the first half of 1914. We therefore estimate domestic consumption

COPPER PRICES IN JANUARY.

Day.	— New York — London.			
	Lake.	Electro.	Casting.	Standard.
	Cents.	Cents.	Cents.	£ s d
1				
2				
3				
4	13.10	12.85	12.75	57 2 6
5	13.25	13.06 $\frac{1}{2}$	12.90	57 17 6
6	13.50	13.30	13.15	59 5 0
7	13.50	13.25	13.12 $\frac{1}{2}$	58 15 0
8	13.50	13.37 $\frac{1}{2}$	13.25	59 15 0
9				
10				
11	13.62 $\frac{1}{2}$	13.50	13.37 $\frac{1}{2}$	59 12 6
12	13.68 $\frac{3}{4}$	13.55	13.40	59 15 0
13	13.75	13.60	13.45	59 17 6
14	13.75	13.60	13.45	59 15 0
15	13.75	13.60	13.45	60 2 6
16				
17				
18	13.90	13.75	13.55	60 17 6
19	13.87 $\frac{1}{2}$	13.70	13.55	60 15 0
20	14.00	13.80	13.65	61 0 0
21	14.12 $\frac{1}{2}$	13.90	13.70	61 17 6
22	14.12 $\frac{1}{2}$	13.95	13.70	62 12 6
23				
24				
25	14.37 $\frac{1}{2}$	14.12	13.87 $\frac{1}{2}$	63 7 6
26	14.37 $\frac{1}{2}$	14.18 $\frac{1}{4}$	13.93 $\frac{3}{4}$	64 5 0
27	14.37 $\frac{1}{2}$	14.18 $\frac{1}{4}$	13.93 $\frac{1}{4}$	63 7 6
28	14.62 $\frac{1}{2}$	14.40	14.12 $\frac{1}{2}$	62 17 6
29	14.62 $\frac{1}{2}$	14.45	14.12 $\frac{1}{2}$	63 5 0
30				
31				
Highest	14.75	14.50	14.25	64 7 6
Lowest	13.00	12.80	12.75	57 2 6
Average	13.891	13.707	13.522	60 15 4

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37 ¹ / ₂	16.89	14.76	13.89
Feb.	12.73	14.48 ¹ / ₂	15.37 ¹ / ₂	14.98	...
Mar.	12.56	14.87	14.96	14.72	...
Apr.	12.41	15.98	15.55	14.68	...
May	12.32	16.27	15.73	14.44	...
June	12.63	17.43	15.08	14.15	...
July	12.72	17.37	14.77	13.73	...
Aug.	12.70	17.61	15.79	12.68	...
Sep.	12.57	17.69	16.72	12.44	...
Oct.	12.47 ¹ / ₂	17.69	16.81	11.66	...
Nov.	12.84	17.66	15.90	11.93	...
Dec.	13.79	17.62	14.82	13.16	...
Av.	12.71	16.58	15.10	13.61	...

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75 ¹ / ₂	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	...
Mar.	12.31	14.78	14.92 ¹ / ₂	14.33 ¹ / ₂	...
Apr.	12.15 ¹ / ₂	15.85	15.18	14.34	...
May	12.13	16.16	15.63	14.13	...
June	12.55	15.29	14.85	13.81	...
July	12.62 ¹ / ₂	17.35	14.57	13.49	...
Aug.	12.57 ¹ / ₂	17.60	15.68	12.41 ¹ / ₂	...
Sep.	12.39	17.67	16.55	12.09	...
Oct.	12.36	17.60	16.54	11.40	...
Nov.	12.77	17.49	15.47	11.74	...
Dec.	13.71	17.50 ¹ / ₂	14.47	12.93	...
Av.	12.55	16.48	15.52	13.31 ¹ / ₂	...

CASTING COPPER PRICES.

Average monthly prices of **Casting Cop-**per in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27 ¹ / ₂	13.52
Feb.	12.33	14.02	15.14	14.48	...
Mar.	12.20	14.53	14.76	14.18	...
Apr.	12.07	15.72	15.37	14.18	...
May	12.08	16.04	15.45 ¹ / ₂	14.09	...
June	12.40	17.08	14.72	13.65	...
July	12.49	17.09	14.40 ¹ / ₂	13.44	...
Aug.	12.42	17.35	15.50	12.27	...
Sept.	12.33	17.51	16.37	12.00	...
Oct.	12.21	17.44	16.43	11.29	...
Nov.	12.61	17.34	15.19	11.63	...
Dec.	13.56 ¹ / ₂	17.34	14.22	12.83	...
Av.	12.42	16.29	15.43	13.18	...

SHEET COPPER PRICE CHANGES.

The base prices of sheet copper for the past year are given in following table together with the price of Lake copper on the same dates.

1914—	Sheet Copper.	Lake Copper.
January 1	20.25	17.37 ¹ / ₂
February 2	20.00	15.12 ¹ / ₂
March 13	19.75	14.50
May 13	19.50	14.43 ¹ / ₄
May 22	19.25	14.43 ³ / ₄
June 15	19.00	14.18 ¹ / ₄
July 27	18.50	13.43 ¹ / ₄
August 18	18.00	12.56 ¹ / ₄
September 1	17.50	12.62 ¹ / ₂
October 1	17.00	12.12 ¹ / ₂
October 22	16.50	11.50
November 19	17.00	12.25
November 23	17.50	12.62 ¹ / ₂
December 1	18.00	12.90
December 15	18.50	13.50

1915—

January 16	18.75	13.75
January 21	19.00	14.12 ¹ / ₂
January 25	19.50	14.37 ¹ / ₂
January 29	19.75	14.62 ¹ / ₂

COMPOSITE METAL PRICES.

Computation for February 1, 1915:

Pounds	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	7.70	19.250
1	Lead (St. Louis)	3.65	14.600
3	Copper (Electro)	14.55	43.650
1	Tin (New York)	38.00	19.000
10 pounds	...	...	96.500

One pound 9.6500

Monthly averages

	1912	1913.	1914	1915
January	9.778	10.987	9.105	8.836
February	9.677	10.260	9.294	...
March	9.886	10.024	9.026	...
April	10.277	10.198	8.844	...
May	10.468	10.163	8.668	...
June	11.014	9.648	8.431	...
July	11.043	9.598	8.245	...
August	11.092	10.025	9.141	...
September	11.575	10.750	8.067	...
October	11.776	10.029	7.760	...
November	11.772	9.790	7.873	...
December	11.219	9.053	8.430	...
Av.	10.750	9.977	8.555	...

COPPER — ANTIMONY.

for the six months ending December 31, 1914, at 210,000,000 pounds, or at an average rate of 35,000,000 pounds per month. On the basis of the foregoing calculation the total United States copper consumption for the calendar year 1914 would appear to have been 540,643,116 pounds. Subtracting domestic consumption and exports from production and available supplies the result shows stocks of refined copper on hand January 1, 1915, of 253,646,631 pounds. If home consumption for the last half of 1914 should have possibly equalled an average of 40,000,000 pounds a month their stock carried over at beginning of this year would appear as 223,646,631 pounds."

The matter of the statistical position of the metal is going to be a matter largely of guesswork in the future, as the Copper Producers' Association who suspended issuing statistics at the outbreak of the war, and having since been dissolved, no monthly statistics will be issued in the future.

The production at the mines and smelters is being rapidly increased, and is believed now to be up to 80 per cent of normal. While it will take two months before this increased output will be reflected at the refineries, still, seeing it coming, and so little improvement in our home consumption, buyers are inclined to do nothing now, and the market closes dull and shows indications of having gone as high as it will in the recent movement, both in volume of business and prices.

WATERBURY COPPER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87	14.50	15.00	14.75	14.12
Feb.	12.75	14.50	15.50	15.12	...
Mar.	12.50	15.00	15.12	15.00	...
Apr.	12.50	16.00	15.75	14.87	...
May	12.37	16.37	15.87½	14.75	...
June	12.62½	17.50	15.37½	14.37½	...
July	12.75	17.75	14.75	14.12½	...
Aug.	12.75	17.75	15.00	13.00	...
Sep.	12.62	17.87	16.87	12.87	...
Oct.	12.50	17.75	16.87	12.25	...
Nov.	12.87	17.75	16.25	12.25	...
Dec.	13.87½	17.75	15.00	13.50	...
Av.	12.75	16.71	15.83	13.91	...

ANTIMONY IN JANUARY.

The market has been a very active one, opening at 16¼c for Cooksons, 14.75c for Halletts, 13¼c for Hungarian grade, the market has been steadily advancing, closing at 19¼c for Cooksons, 18c for Halletts, and 16¼c for Hungarian, which advance has been in no way due to manipulation, being caused entirely by an active demand for antimony for war material which has created a world-wide scarcity of supplies. Important American consumers, including manufacturers of shrapnel have been steady large buyers, and there has been a constant foreign inquiry. There is every indication that the scarcity of supplies is likely to get very acute, as all shipments of antimony from England continue embargoed, and shipments from China and Japan for January, February and March are liable to be much less than the previous quarter, on account of the large obligation they have entered into for direct shipment to Russia.

It may require some courage to buy antimony at prices that are more than double what they were a year ago, but this is a metal that has no respect for values, and it is well to remember that in a smaller war, the Russian-Japanese war, the market advanced to over 25c a pound and remained there for over a year. Present outlook would seem to point to a continued advance in price.

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	...
Mar.	9.50	7.52	9.03	7.23	...
Apr.	9.47	8.00	9.00	7.22	...
May	9.48	8.00	8.77	7.29	...
June	8.86	8.00	8.63	7.21	...
July	8.50	8.26	8.47	7.11	...
Aug.	8.44	8.51	8.38	16.23	...
Sep.	8.27	8.84	8.30	12.19	...
Oct.	8.08	10.22	7.66	13.87	...
Nov.	7.94	10.31	7.52	17.26	...
Dec.	7.81	10.06	7.45	15.82	...
Av.	8.58	8.54	8.52	10.50	...

ANTIMONY.

ANTIMONY PRICES IN JANUARY.

Cooksons. Halletts. Hungarian.

Day.	Cts.	Cts.	Cts.
1	.....	.....	.....
2	.....	.....	.....
3	.....	.....	.....
4	16.25	14.75	13.25
5	16.25	14.75	13.25
6	16.25	14.75	13.25
7	16.50	15.50	14.00
8	16.75	15.75	14.75
9	.....	.....	.....
10	.....	.....	.....
11	16.75	15.75	14.75
12	16.75	15.75	14.75
13	16.75	15.75	15.00
14	17.00	16.00	15.00
15	17.00	16.12½	15.25
16	.....	.....	.....
17	.....	.....	.....
18	17.75	16.75	15.75
19	17.87½	16.87½	15.87½
20	17.87½	16.87½	15.87½
21	18.25	17.25	16.25
22	18.25	17.25	16.25
23	.....	.....	.....
24	.....	.....	.....
25	18.25	17.25	16.25
26	18.75	17.75	16.25
27	19.25	18.00	16.25
28	19.25	18.00	16.25
29	19.50	18.00	16.50
30	.....	.....	.....
31	.....	.....	.....
Highest	20.00	18.50	16.75
Lowest	16.00	14.50	13.00
Average	17.562	16.444	15.237

Average monthly price of Halletts anti-mony in New York.

	1911	1912	1913	1914	1915
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	.....
Mar.	9.20	7.49	8.66	6.95	.....
Apr.	8.97	7.75	8.35	6.90	.....
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av.	8.16	8.19	8.07½	9.82	.....

ALUMINUM IN JANUARY.

The market for aluminum has been quiet, at unchanged prices throughout the month, what business done being almost entirely between the single American producer and consumers.

The New York price has been the asked, but this price has probably been slightly shaded on actual transactions.

ALUMINUM and SILVER PRICES IN JANUARY.

Aluminum. — Silver —

New York. New York. London.

Day.	Cents.	Cents.	Pence.
1	.....	.....	.....
2	.....	48½	22½
3	.....	.....	.....
4	19.12½	48¾	22½
5	19.00	48¾	22½
6	19.00	48¾	22½
7	19.00	48¾	22½
8	19.00	49	22½
9	.....	48¾	22½
10	.....	.....	.....
11	19.00	49½	22½
12	19.00	49½	22½
13	19.00	49¼	22½
14	19.00	49¾	22½
15	19.00	49	22½
16	.....	48¾	22½
17	.....	.....	.....
18	19.00	49	22½
19	19.00	49	22½
20	19.00	49	22½
21	19.00	49¾	22½
22	19.00	48	22½
23	.....	48¾	22½
24	.....	.....	.....
25	19.00	48¾	22½
26	19.00	48¾	22½
27	19.00	48¾	22½
28	19.00	48¾	22½
29	19.00	48¾	22½
30	.....	48¾	22½
31	.....	.....	.....
Highest	19.25	49¾	22½
Lowest	18.75	48¾	22½
Average	19.006	48.895	22.747

SPELTER.

SPELTER IN JANUARY.

The past month will long be remembered in the spelter trade. Opening at 5.55c f.o.b. E. St. Louis the market rapidly advanced without a single reaction until 7.60c was reached at the close of the month. This is an advance that has never been experienced in any single month in the history of the trade, and at time of writing, February 9th, the market has further advanced to 8c f.o.b. E. St. Louis, which is the highest price for which there are any modern records. In the case of Brass Special and higher grades the advance has even been more sensational, it having been not a question of price but of finding a seller.

The excitement and disturbance in the market began on January 4th when it became known that the preliminary statistics that the Government was accustomed to issue at this time would not be issued, and while no reason has been officially given it is understood that it was on account of the difficulties experienced in getting reports from producers. The market immediately began to have an advancing tendency both here and abroad, some of the principal sellers refusing to quote which only made buyers more eager.

About January 10th, the "Engineering & Mining Journal" published figures which were the result, they stated, of reports they had obtained from all the American zinc smelting companies with the exception of one small company, which showed that the production in the last half of 1914 was 185,631 tons. This same authority estimated the stocks in producers' hands December 31st, 1914 at 23,500 tons, based on the stocks of 15 companies, and **the estimated stocks of 4 others.** These four others may have been the largest companies and it must be remembered was only an estimate.

If the stocks on December 31st were only 23,500 tons, there was an apparent American consumption (after deducting 60,000 tons exports) of 166,170 tons for the last six months of 1914, in other words, a greater American consumption than any other half year on record with the exception of the first half of 1912.

We criticised these figures in the "Steel and Metal Digest" for January, and we

came to the conclusion that it was not reasonable to suppose that these statistics told the true story. If there had been any such American consumption where had it been consumed, since the largest consumer, the galvanized iron trade, had not run more than 60% of normal in these months?

No explanation has been forthcoming to explain how the domestic deliveries into consumption in the last six months of 1914 were larger than the first half, and the explanation may be that in arriving at this stock the "Engineering & Mining Journal", had to estimate the amount held by four companies. These statistics surprised but

SPELTER PRICES IN JANUARY.

Day	New York. Cts.	St. Louis. Cts.	London. £ s d
1			
2			
3			
4	5.75	5.55	28 2 6
5	5.82 ¹ / ₂	5.65	28 7 6
6	5.90	5.72 ¹ / ₂	28 5 0
7	5.95	5.75	28 7 6
8	6.00	5.80	28 10 0
9			
10			
11	6.05	5.85	28 15 0
12	6.10	5.90	29 0 0
13	6.10	5.92 ¹ / ₂	29 0 0
14	6.10	5.95	29 10 0
15	6.10	5.95	29 15 0
16			
17			
18	6.22	6.02	30 0 0
19	6.27 ¹ / ₂	6.10	30 10 0
20	6.45	6.27 ¹ / ₂	31 5 0
21	6.87 ¹ / ₂	6.75	32 0 0
22	7.12	6.87 ¹ / ₂	32 10 0
23			
24			
25	7.30	7.12	33 0 0
26	7.50	7.31	33 10 0
27	7.45	7.25	34 10 0
28	7.55	7.31	35 0 0
29	7.75	7.56	37 0 0
30			
31			
Highest	7.87	7.62 ¹ / ₂	37 0 0
Lowest	5.70	5.55	28 2 6
Average	6.519	6.432	30 16 10

SPELTER.

at the same time had the effect of exciting buyers, and on the refusal of the producing interests to quote, the market continued to advance, becoming very excited about January 20th, when no sellers could be found at lower than 6 $\frac{3}{4}$ c E. St. Louis, and for the remaining days of the month there was a runaway market. The advances are shown in our regular table giving the price each day.

In the case of Brass Special and High Grade Spelter the advance, even though it has carried the market to extravagant prices, is undoubtedly justified. There has been an unprecedented demand for these grades both for home and export, these grades being required for making brass, the commodity for which the war has created an enormous demand both here and abroad. It has been a case of a greater demand than there was the metal to meet it, and sellers could get almost any price they asked, as in these war orders it is not a question of price but of supplying the goods.

But in Prime Western Spelter used almost entirely for galvanizing purposes, it is quite impossible to explain the scarcity, if it really exists. Certainly there is little increase in our galvanized sheet iron consumption which is still only about 70% of normal, and in many minds the conviction exists that the supply and stocks have been cleverly manipulated to the enormous profit of those interested.

A theory we have heard is, that certain

interests seeing an export demand coming and realizing the liability to excitement from mental state of buyers caused by the war, have deliberately locked away a large amount of the metal, forgetting that they had it, and thus having been done, there has not been enough to supply the demand, and the only moderate home consumption. Time alone will tell whether this has been the case or not.

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915
Jan.	5.77	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.59	
Mar.	6.01	7.17	6.56	5.59	
Apr.	5.85	7.07	6.08	5.50	
May	5.76	7.13	5.77	5.38	
June	5.89	7.25	5.50	5.37	
July	6.11	7.46	5.61	5.26	
Aug.	6.29	7.34	5.99	5.66	
Sep.	6.29	7.72	6.13	5.91	
Oct.	6.49	7.83	5.74	5.23	
Nov.	6.90	7.74	5.60	5.38	
Dec.	6.81	7.65	5.44	5.90	
Av.	6.16	7.33	6.06	5.56	

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc during the past year together with the price of spelter ruling at the same day.

SPELTER (Monthly Averages.)					
—New York—			—St. Louis—		
1913.	1914.	1915.	1913.	1914.	1915.
Jan. 7.23	5.33	6.52	7.04	5.14	6.36
Feb. 6.49	5.46		6.25	5.27	
Mar. 6.29	5.35		6.08	5.15	
Apr. 5.79	5.22		5.79	5.03	
May 5.51	5.16		5.31	4.96	
June 5.23	5.12		5.05	4.93	
July 5.41	5.03	....	5.23	4.84	
Aug. 5.80	5.63		5.64	5.45	....
Sep. 5.83	5.52	....	5.65	5.33	....
Oct. 5.47	4.99		5.27	4.81	
Nov. 5.34	5.15		5.15	4.97	
Dec. 5.22	5.07		5.03	5.49	....
Av. 5.80	5.30	....	5.61	5.11	....

1914—		Spelter	
		Sheet Zinc.	St. Louis.
January 1		7.50	5.12
January 22		7.25	5.12
March 11		7.00	5.17
August 11		7.25	5.25
August 18		7.50	5.65
August 21	7.50	8.00	5.80
August 31	8.50	8.50	5.90
October 14		8.00	4.60
December		8.25	5.37
December 5	8.50	8.50	5.50
December 15		8.75	5.50
1915			
January 12		9.00	5.90
January 19		9.25	6.10
January 21		9.50	6.75
January 26		10.00	7.31

REVIEW OF JOPLIN ORE MARKETS.

The market for zinc ores for the month of January held somewhat better than the price prevailing at the close of the past year. For the first two weeks of the month zinc ore remained on an even tenor, the price being \$48.60 per ton and rose at the last of the month to a base price of \$52 per ton of 60% zinc. The average price per ton by weeks being \$49.43, while the maximum base price obtained throughout the month was \$57, which is considerably in excess of any price being paid for zinc ore for more than a year. The total output for blend ore for the month even in the face of prevailing high prices was only 17,034 tons or an average per week of 4,263 tons, whose low tonnage is to be wondered at in view of the fact that the prevailing prices were so good.

Calamine ores throughout the month sold quite generally on an advance price of from \$25 to \$33 per ton of 40% grades with an average weekly price of \$28.08 per ton. The market for these ores was very strong although the tonnage was very light, reaching a total of only 1,153 tons for the month. The limited production of this ore was probably due to the inclement weather prevailing and due to the fact that the production of this ore comes from outlying camps where the plants are rarely if ever housed in. It is also notable that the production of zinc ores as a whole was very light, in face of the good prices obtainable it would be supposed that the operators would do everything possible to take advantage of the high prices. The reason for the continued light production, however, is to be found in the fact that the former depression extending over nearly the entire last eight months of the year caused many properties to shut down for an indefinite period as the market at that time looked particularly dull. As a result many of the operators went so far as to pull their pumps and even to forfeit their leases, consequently the starting of these properties again will require complete reorganization which will take considerably more time to open up the mines and increase the production of the district had the shut-down been merely temporary instead of enforced through a long period of depression. However, the operators are slowly getting back to the idea and as considerable optimism is apparent throughout the district it is to be expected that an increased production will be the result.

The lead ore market for the month was dull and inactive. The price being paid for ores remaining throughout at a price of \$47 per ton due to this fact more than any other cause the production was light being only 2,063 tons with an average of 741 tons per week. The demand for lead for the month was very good, the buyers would easily have taken twice this tonnage had it been available. With the coming of better prices in the ore market for all grades of ores it is to be expected that the surplus stocks held in the bins of the producers will be materially lowered. The estimated surplus at present being 10,500 tons of zinc ores and 700 tons of lead ores, however, there is a tendency on the part of the producers who are holding their ores to continue holding them until they are sure that the price of zinc ore has reached the high market.

HUNGARIAN ANTIMONY.

Average monthly price of Hungarian antimony ordinary brands in New York

	1911.	1912.	1913.	1914.	1915.
Jan.	5.15	6.89	8.77	6.95	15.24
Feb.	5.15	6.78	8.16	6.00	
Mar.	8.75	6.78	7.90	5.04	
Apr.	8.34	6.87	7.82	5.82	
May	8.06	6.98	7.75	5.78	
June	7.68	7.00	7.62	5.92	
July	7.92	7.00	7.55	5.44	
Aug.	7.92	7.58	7.48	13.05	
Sep.	7.00	8.00	7.40	9.49	
Oct.	6.94	9.11	6.46	11.64	
Nov.	6.94	9.11	6.28	14.14	
Dec.	6.97	9.05	6.05	13.75	
Av.	7.48	7.66	7.43	8.77	

ALUMINUM AND SILVER PRICES.

New York.

	Aluminum			Silver		
	1911.	1914.	1915.	1911.	1914.	1915.
Jan.	26.34	48.86	49.01	67.00	57.56	48.89
Feb.	26.20	48.80		67.64	57.50	
Mar.	23.72	48.50		57.87	58.07	
Apr.	26.91	48.08	.....	59.40	58.52	
May	25.95	47.90		60.66	58.48	
June	24.79	47.82		58.00	56.45	
July	24.34	47.56		58.72	54.98	
Aug.	22.74	20.38		59.20	54.34	
Sep.	24.69	47.48		60.00	54.20	
Oct.	24.32	48.25		60.70	54.05	
Nov.	19.49	48.83		58.00	49.10	
Dec.	18.85	49.02		57.76	49.08	
Av.	24.60	48.59		59.75	54.81	

BRANDS OF COPPER.

United States.

L A K E .

Refined at:

Branded.

Adventure	Hancock, Michigan.	Adv. C. Co.
Atlantic	Houghton Michigan.	A.
Calumet & Hecla	Hubbell, Michigan.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	B. L.
Centennial	Hancock, Michigan.	C. C. M. Co.
Copper Range	Houghton, Michigan.	C. R.
Franklin	Hancock, Michigan.	F. M. Co.
Isle Royale	Dollar Bay, Michigan.	I. R. C. Co
Mass.	Hancock, Michigan.	Mass.
Michigan	Houghton, Michigan.	M. C.
Mohawk	Houghton, Michigan.	M. M.
Osceola	Dollar Bay, Michigan.	T. O.
Quincy	Hancock, Michigan.	Q. M. Co.
Tamarack	Dollar Bay, Michigan.	T. O.
Victoria	Hubbell, Michigan.	V. C.
Winona	Hubbell, Michigan.	W. A.
Wolverine	Houghton, Michigan.	W.

ELECTROLYTIC.

Refined at:

Branded.

American S. & R. Co.	Perth Amboy, N. J.	P. A.
Balbach S. & R. Co.	Newark, N. J.	C. H. S. Co.
Baltimore Copper Works	Baltimore, Md.	B. E. R.
Boston & Montana Co.	Great Falls Mont.	B. & M.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Copper Queen	Laurel Hill L. I.	* Q
Miami	Laurel Hill L. I.	A. L. S.
Nichols Copper Co.	Laurel Hill L. I.	L. N. S.
Orford Copper Co.	Chrome, N. J.	O. E. C.
Raritan Copper Works	Perth Amboy, N. J.	N. E. C.
U. S. Metals Ref. Co.	Chrome, N. J.	D. R. W.
United Metals Selling Co.	Laurel Hill L. I.	R. M. C.

C A S T I N G .

Refined at:

Branded.

Balbach S. & R. Co.	Newark, N. J.	N. B. C.
Boston & Montana Co.	Great Falls Mont.	M. A.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Nichols Copper Co.	Laurel Hill L. I.	C. N. C.
Phelps Dodge & Co.	Laurel Hill L. I.	P. D. Co.
U. S. Metals Ref. Co.	Chrome, N. J.	D. S.
Tottenville Copper Co.	Tottenville N. Y.	C. T. C.

TRADE NOTES.

The Metal Products Corporation, 1012 Eddy street, Providence, R. I., is preparing to make extensive improvements and alterations to the manufacturing building which it occupies and a number of pieces of additional machinery is to be installed in the several departments.

The Turbine Engine Mfg. Company, Chicago, has been incorporated with a capital stock of \$100,000, to manufacture turbine engines. The incorporators are W. S. Stewart, 3713 Lake Park avenue, S. E. Hill and John A. Brown.

The Dennis Wire & Iron Company, of London, Ont., is buying more property and contemplates a big extension to the plant it now occupies. The company makes a specialty of solid bronze work.

The A-A Electric Manufacturing Company, 355 Water street, Bridgeport, Conn., to manufacture electric fixtures, metal shades and other specialties, has been incorporated with a capital stock of \$20,000. The officers are Linn B. Abbott, president; H. C. Alvord, secretary and treasurer.

Work has been started by the New Jersey Zinc Co., at Palmerton, Pa., on the erection of another addition to its plant which, it is reported, will cost about a half a million dollars to construct and equip. When finished it will be devoted to the manufacture of lithopine, a valuable substance used in mixing paints.

The Portland Forge & Foundry Company, Portland, Ind., has been incorporated with \$80,000 capital stock, to do a general forging business. The directors are J. A. Long, L. G. Holmes and C. C. Cartwright.

The Everhard Manufacturing Company, manufacturers of electrical appliances, metal specialties and novelties, 524 Walnut avenue, Canton, Ohio, is planning to double its plant in order to take care of its growing business. The company was recently incorporated with \$10,000 capital stock by C. H., H. H. and V. P. Everhard.

A charter of incorporation was granted the Fort Wayne Rolling Mill Corporation, Fort Wayne, Ind., engaging in the iron and steel product industry. The company is capitalized at \$100,000, E. F. Yarnelle, H. C. Rockhill and John Evans being the incorporators.

The Milwaukee Steel Type & Disc Company, Milwaukee, Wis., has been incorporated with a capital stock of \$20,000 by A. C. Moeller, Fred R. Schreiner and Emmet Horan, Jr.

The Helmut's State & Steel Company, Millersburg, O., has increased its capital stock from \$25,000 to \$75,000. Nothing is known as to extensions planned.

The Machinery Specialty Co., Joliet, Ill., has been incorporated to manufacture and deal in steel, iron and other metals; capital stock \$10,000; Louis B. Mather, Henry J. Bates and Nina Bates.

The E. E. Burch & Son Machine Company, Newell, Ohio, has been incorporated with \$25,000 capital stock by E. E. Burch and others.

The Aluminum Specialty Company have opened a factory in Oakville, Ont., which will be greatly enlarged, and they have opened offices in Montreal, London, Ont., Ottawa, Hamilton, and will do so in other places. A factory will also be built in Toronto and will employ 200 to 300 men.

The Baker Cutlery & Hardware Co., White Plains, N. Y., has been incorporated; capital stock \$200,000; by W. B. Hall, T. A. O'Calaghan, H. Audley, White Plains.

The Enterprise Aluminum Co., recently incorporated, is temporarily established in one of the buildings of the Massillon Rolling Mill Company; the company expects eventually to equip a plant of its own; R. E. Bebb, Canton O., president.

The Western Electrical Co., Ltd., Regina, Sask., Can., has been incorporated with a capital stock of \$20,000 to manufacture electrical goods, etc.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, MARCH, 1915

NO. 3.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,
C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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THE BUSINESS SITUATION.

The business situation can be summed up in a few words. It can be conservatively stated as being, all circumstances considered, extraordinarily satisfactory, and better still, gives great promise of continuing to progress along the same lines of recovery and confidence as has been lately in evidence.

Sentiment is recovering from the depressed reports of the operations in the past year, as shown in the statements of so many of our largest companies, take for instance, the report of the United States Steel Corporation which resulted in their having to pass their dividend on their common stock, and the enormous falling off in the purchases of new equipments by the railroads, which in the case of eight equipment companies showed a falling off in their business of 1914 of over \$100,000,000 and decreased their net earnings nearly \$14,000,000.

These are only a few illustrations of the depression in trade through which the country has passed, and which our worthy President is on record as describing as purely psychological.

Country Held Back By Legislation.

The progress of invention in the last ten years has been steadily towards economy of energy and multiplication of efficiency, furnishing the machinery for an enormous extension of prosper

EDITORIAL.

ity, which means happiness, but here in this country, loaded with natural wealth, peopled by millions of intelligent, peaceful, industrious enterprising men and women, the curse of political class antagonism holds, or has held down progress. Outside of the Federal Bank Act it is difficult to remember one constructive law, State or National, that has been passed in the last ten years—one law which has had for its object the benefit of business and the protection of capital, upon which two things the prosperity of the country in the last analysis must absolutely depend. However, all this represents the past and the business interests are quite ready to forget and look hopefully forward to the future.

Adjournment of Congress a Great Relief.

The adjournment of Congress is a great relief to business. The record of two years of Democratic control is not a favorable one on the whole, although it includes one great achievement, and that is the instalment of an economically sound and financially adequate Banking system. The distinction of this achievement is lost sight of now—as it will not be in history—because of the passage of a lot of experimental, useless and unwise legislation.

The country is relieved now, probably for six months, from the threat of any disturbing national legislation and an opportunity is afforded for business to assume its natural course.

International Credit Balance.

Perhaps the most impressive change that has taken place has been in the foreign exchange market. During the panicky weeks following the outbreak of the war, foreign exchange reached the unprecedented high rate of

\$7.00. During the past month the lowest rate on record has been experienced, namely \$4.79. This would have led to a flood of gold imports, had it not been that while the war lasts, there is what is almost equivalent to an embargo on gold shipments. In times of former panics like 1907 our international balance was restored by selling our securities and products to Europe at 50c to 75c on the dollar. At present while our securities have declined heavily in price they are still in our possession, and our holdings have been increased by purchases from Europe at bargain prices. We have restored our international balance by selling our products, in many instances, and certainly our food supplies, and other products that Europe had to have at \$1.50 to \$2.00 on the dollar. Besides this we have been keeping at home hundreds of millions of dollars usually spent by our tourists and others who while getting their revenue from America, preferred to live and spend it in Europe. Economy has been the order of the day, and has been shown in the purchases of Europe which has not stopped short of the luxuries of life, and in consequence we have a balance of trade in our favor at present, monthly running at the rate of over \$100,000,000 with every prospect of continuing at this rate if not increasing.

Unemployment.

The situation has been very serious this Winter, but we have survived it. Usually with the Spring there is always a heavy decrease in unemployment which is sometimes made less impressive by the increased immigration at this time of the year. There will be no immigration to speak of this Spring. We believe before the end of the year, what we may have to face will be an

EDITORIAL.

actual scarcity of labor. The Winter that was so dreaded with all its consequent unemployment and distress is now in its last weeks. The sap will soon be running in the trees, and this is always a signal for renewed American energy and confidence.

Fundamental Conditions Sound.

Our security market is showing steadiness and improvement, money is in good supply, credit is on a sound basis, and while failures continue large, they represent the cleaning up which always follows disturbances like those of the past year. Now that the strain is passing away, support for weak members is not necessary for the safety of the general business structure. In other words, we have gone through the greatest test our business situation has probably ever seen, and it has been found sound and secure. Our resources and our ability to exploit business stands higher to-day in the estimation of the world than ever before.

We wish the same could be said of our political achievements but the country is thankful that in spite of our blundering Mexican policy, and the attitude at times of our rulers at Washington to hold their superior wisdom in higher esteem than the sound common sense of the people they represent, the latter as in cases of matters that threatened foreign complication have won out in the end, the shipping bill for instance. We believe the chastening effects of the defeat of Administration's pet measures will make for closer touch with the desires of the nation. There is no man or small body of men so honest, or wise or conscientious to whom the American republic is prepared to surrender their power to decide their own destinies.

Industries dependent on home consumption and home trade have continued very slack and in many cases depressed. Our most important industry the farming industry and all industries connected with what Europe at present wants, are rolling in prosperity and big profits, and while the war lasts it is certain to continue. The awful troubles of Europe have forced the warring nations to turn to us for supplies at virtually our own prices. We have enjoyed not only the benefits of peace but we have also had the benefit of being the only country able to adequately supply the necessities that Europe could not supply.

The prosperity and profits of our farmers and many of our manufacturers are very real and will be reflected in the recovery of all our home industries some time this year. The source of all wealth is what we get from Mother Earth, and those who are engaged in the operations have been put in a position to enormously increase their activities by the money they have made. The incentive created by the high prices and the prospective continued heavy demand is going to result in an enormous increase in the cultivation of our land.

Situation Must Before Long Be Reflected in General Business.

It is quite impossible to believe that general business, and especially our steel and other important industries dependent on home consumption which have been running during the past twelve months around 50 per cent of normal can fail to undergo a great change for the better, in fact a change has already begun. Fears and lack of confidence have gone the limit; actual necessities and requirements of the

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country are now gradually making themselves felt; they could not be held back much longer.

The Possibility or Effect of War Entanglements.

It may be said that this, however, will depend on our keeping out of the war, and that while there is no prospect of our entanglement, the fear will always be present to hold back business. To this we reply, - not so if our previous view is correct, namely, that psychology has gone the limit and that the actual necessities cannot be much longer held from making themselves felt. It is unimaginable that we could find ourselves at war with the allies. The only other alternative is that we would be engaged on their side. If so, only our navy could be called upon, but we do not see where it would stop the

raising of a bushel of our crops, or cause the selling of any of our securities by foreigners, or in fact do anything but increase our manufacturing activities, furthermore it would take us out of the mental slough of political and party dissatisfactions and disappointments, and unite us as a nation, as has been shown in the case of the British Empire. It certainly would increase our trade with the allies, the only nations with whom we are now able to trade with any freedom, while best of all it would bring in sight an early end of the war, and enable American ideas to play a more prominent part in the final settlement. It does seem that everything justifies a return of confidence and better business, and we still hold to our opinion so repeatedly expressed in the past that this country is on the threshold of great prosperity and business activity.

RAILROAD EARNINGS.

Beginning July 1, 1914, a new system was established, whereby the railroads, instead of reporting figures, and then reporting in addition the "net revenue from outside operation" (boat lines, electric lines, cabs, etc.) must include such revenue with total operating revenue. With the fresh figures as reported under the new system are given figures for the month a year earlier, compiled in the same manner, for comparative purposes, the compilation being made by the Bureau of Railway Economics. The Interstate Commerce Commission discontinued its monthly reports with that for August, 1914.

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	\$1,183	\$837	\$346	\$1,124	\$785	\$339
August	1,244	856	388	1,175	789	386
September	1,257	854	403	1,182	781	401
October	1,531	891	640	1,165	786	383
November	1,180	881	299	1,025	732	292
December	1,116	871	245	990	728	262

BUSINESS TRENDS.

THE STOCK MARKET.

The volume of stock transactions on the New York Stock Exchange during the month of February reached a total of 4,347,866 shares, against 5,928,113 shares in January and 6,175,873 shares in February, 1914. The par value of bonds sold during the past month amounted to \$43,723,500, as compared with \$56,867,500 in January and \$69,081,000 in February of last year. The aggregate of stock transactions for the first two months of 1915 is thus brought up to 9,375,979 shares, against 16,188,277 shares sold during the corresponding period in 1914. Bond sales for the two months amounted to \$100,591,000, as compared with \$157,904,600 last year.

The following shows the transactions in stocks for the month of February during a series of years:

Stocks, Shares.

1915 . . .	4,347,866	1907 . . .	16,355,952
1914 . . .	6,175,873	1906 . . .	21,530,072
1913 . . .	6,578,684	1905 . . .	25,422,372
1912 . . .	7,030,882	1904 . . .	8,543,669
1911 . . .	10,101,577	1903 . . .	10,948,233
1910 . . .	15,954,944	1902 . . .	13,021,133
1909 . . .	12,192,161	1901 . . .	21,681,202
1908 . . .	9,809,923	1900 . . .	15,185,067

Bonds, Par Value.

The February figures covering bond transactions since 1900 follow:

1915 . . .	\$43,723,500	1907 . . .	\$32,087,262
1914 . . .	69,081,000	1906 . . .	59,902,000
1913 . . .	48,734,000	1905 . . .	112,344,500
1912 . . .	51,686,000	1904 . . .	35,673,500
1911 . . .	71,809,500	1903 . . .	65,168,200
1910 . . .	64,087,500	1902 . . .	85,531,500
1909 . . .	110,975,720	1901 . . .	21,681,202
1908 . . .	58,299,700	1900 . . .	43,985,000

OUR FOREIGN TRADE.

January.	1915.	1914
Exports . . .	\$267,801,370	\$204,066,603
Imports . . .	122,265,267	154,742,923
Excess of exports	145,536,103	49,323,680
Calendar year:	1914.	1913.
Exports	2,113,624,050	2,484,018,292
Imports	1,789,276,001	1,792,596,480
Excess of exports	324,348,049	691,421,812

COMMODITY PRICES.

Bradstreets index number as of February 1st works out at \$9.6621. This with two exceptions is the highest level ever recorded, the exceptions being those registered on August 15th, and on September 1st last. The number just given represents an advance of 5.6 per cent over that of January 1st.

It is 9 per cent above that recorded on February 1, 1914, but is only 24 per cent higher than that of the same date in 1913. It represents an advance of 8 per cent over February 1, 1912, of 11 per cent over February 1, 1911, and of 6 per cent over February 1, 1910.

COMMERCIAL FAILURES.

Failure returns as reported by Bradstreets in the month of February amounted to 1,864 suspensions, with liabilities of \$24,946,686. The failures were about 21 per cent smaller than in January, but 54 per cent greater than in February, 1914.

Following is the comparison of failures, liabilities, and assets in Feb. back to 1910:

	No.	Assets.	Liabilities.
1915	1,864	\$13,663,321	\$24,946,686
1914	1,206	10,820,258	20,159,736
1913	1,114	16,159,858	29,802,170
1912	1,208	8,491,853	14,964,948
1911	1,012	5,872,935	11,299,867
1910	1,009	7,495,077	16,475,238

PIG IRON PRODUCTION

Rates per annum, including charcoal pig.

1914—	Long tons
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
1915	
January	19,100,000
February	22,100,000
On March 1st	21,250,000

Actual Production.

1900	13,789,242	1913	30,966,152
1910	27,303,567	1914	24,332,244

ANALYSIS OF THE MANGANESE STATISTICS.

Owing to the danger that an acute scarcity of ferromanganese may develop in the next few months there has been a demand for the statistics. In our annual *Metal Statistics* there was given, on page 39, a full presentation of the statistics then available, beginning with the year 1901, carried through November, 1914, as to imports of manganese ore, through September, 1914, as to ferromanganese imports and through June, 1914, as to the domestic production of ferromanganese. Since that publication there have become available statistics of the ore imports in November and December and of the domestic production of ferromanganese in the second half of 1914. We reproduce the table herewith with the additional information available.

These statistics mean nothing at a glance. They must be analyzed in detail. The point to be determined, of course, is the point of time they would indicate at which a scarcity of ferromanganese would begin to develop, with imports of the alloy shut off since some time in November and with ore imports on a reduced scale. The course to pursue in the analysis is plainly marked. First one desires to determine whether the statistics show that stocks of ore have increased or diminished, and whether stocks of the alloy have increased or diminished.

Naturally there is a normal yield of ore in ferromanganese. A cursory glance at the statistics of ore imports and of domestic production show wide variations. For example, in 1903 ore imports were 140,000 tons and production of ferromanganese 36,000 tons, whilst next year the ore imports dropped to 109,000 tons and the production increased to 57,000 tons.

One must deal in averages. Noting that in 1913 the ore imports were larger than in 1912, while the melting was at a lower rate, it is well to take January 1, 1913, as a dividing line. To see whether there has been a progressive increase or decrease in the apparent yield of the ore, we take 1901 to 1907, seven years, as one period, and 1908 to 1912, five years, as another. In the first period the ferromanganese production was 27.6% of the weight of ore imported. In the second period the pro-

portion increased to 35.4%. This looks like a progressive increase, and we can hardly err greatly in assuming that the ore imports of 1913 and 1914 should have produced ferromanganese equal to 35.4%. Applying this factor we find the production in the two years could have been 222,000 tons and leave the stocks of ore the same on January 1, 1915, as they were on January 1, 1913, when, presumably they were not inconceivable. The actual production in the two years was 225,578 tons, so that we were 2,500 tons short.

Ferromanganese Consumption.

The consumption of ferromanganese is a fixed quantity under ordinary conditions. To the molten steel before casting a definite proportion of ferromanganese is added. This applies to practically all steel except Bessemer rail steel (for which spiegel-isen is used) and a limited tonnage of special steels. For these deductions close estimates can be made, and making the deductions from the total tonnage of steel ingots and castings produced, we find that from 1901 to 1907 inclusive the supplies of ferromanganese, imports plus domestic production, constituted .760% of the weight of steel ingots and castings produced that actually involved the consumption of ferromanganese. For the six years 1908 to 1913 inclusive the proportion comes out .768%, showing practically no variation. If, then, we can estimate the ingot production in 1914 involving the consumption of ferromanganese we have the consumption. This estimate we make at 22,000,000 gross tons, indicating a ferromanganese consumption, at .764%, of 168,000 tons.

The imports in nine months of 1914 were 62,333 tons, or at the rate of 7,000 tons a month. Imports seem to have been particularly heavy in October, but they stopped in November, and we think a guess of 75,000 tons for the year cannot be far out. The domestic production was 106,083 tons, making supplies of 181,000 tons, or 13,000 tons in excess of the estimated consumption. We should make allowance, however, for the 2,500 tons of ferromanganese produced by reducing stocks below the level that existed January 1, 1913, and this gives us a net surplus of 10,000 tons.

To sum up. The condition on January 1, 1915, was that we had in the United States ferromanganese or manganese ore to the equivalent of 10,000 tons of the alloy in excess of whatever stocks of ore or alloy were in the country two years earlier.

That was the condition at the beginning of this year. What is it now, and what is the trend? Operating full, the steel works, exclusive of Bessemer rails and specialties, can produce about 2,850,000 tons of steel ingots and castings a month, which at .764% means 21,800 tons of ferromanganese a month. In January and February combined the consumption was probably 22,000 tons, and as there was a surplus of 10,000 tons to start with we have since gone into stocks to the extent of 12,000 tons, except for imports of ore or alloy since January 1st, and we are now with the steel mills operating at 60%, consuming ferromanganese at the rate of 13,000 tons a month.

To put it in another way, if there had been no imports of either ore or alloy since January 1st, then on February 1st we should have been in the same condi-

tion, as to supplies, as obtained on January 1, 1913. The physical scarcity of ferromanganese, therefore is one to be developed in the future, for of course the normal stocks of ore or alloy are considerable. The market scarcity is another matter. It has been produced by those who owned stocks preferring to hold them rather than sell them, because with no fresh supplies of ore or alloy coming in it would be only a matter of a few months until all the alloy would be used, and price is simply no object in ferromanganese, for it is readily computed, according to data available, that \$100 per ton of ferromanganese means about 91 cents per net ton of the average finished steel product.

The presentation of the results of our computations was necessarily made on the basis of assuming no imports of alloy or ore since January 1st, in order to fix the date upon which a scarcity might commence developing. As a matter of fact, there have no doubt been very considerable imports of ore. October imports of ore were 39,836 tons, November showing 1,761 tons and December 26,243 tons.

FERROMANGANESE IMPORTS AND PRODUCTION.

Ferromanganese. 80 per cent gross tons, imports of manganese ore and oxide are general imports; of ferromanganese, imports for consumption; ferromanganese average value per ton is at foreign shipping port, no freight or duty.

	Manganese ore imports	Ferromangan- ese imports	Average values.	Ferromangan- ese production	Production plus imports
1901	165,722	20,750	\$41.97	59,030	80,380
1902	235,576	50,388	36.08	44,526	94,914
1903	146,056	41,518	40.94	35,061	77,479
1904	168,510	21,814	32.41	57,076	78,890
1905	257,033	52,841	35.67	62,186	115,027
1906	221,260	84,359	58.72	55,526	139,876
1907	200,021	87,400	61.27	55,618	143,318
1908	178,203	44,624	41.70	40,044	85,266
1909	212,765	88,934	38.16	82,260	171,143
1910	242,348	114,278	37.96	71,376	185,654
1911	176,852	80,263	37.56	74,482	154,745
1912	300,661	90,137	39.41	125,378	224,515
1913	345,000	128,070	44.37	116,495	247,595
1914	283,294	62,333*	41.33	166,683	185,000†

* Nine months only. † Approximate.

Manganese ore production decreased from the maximum of 53,504 tons in 1887, of which 18,800 tons was Virginian, to 1,561 tons in 1912. Production of spiegel Eisen declined from the maximum of 282,450 tons in 1907 to 116,495 tons in 1912. Imports of spiegel Eisen declined from the maximum of 11,649 tons in 1903 to 1912 tons in 1914.

SPELTER—The Statistical Situation.

On Jan. 9th the Engineering & Mining Journal published a report on the production of spelter for 1914 together with their estimate of stocks which created considerable comment at the time. The extraordinary advance that has taken place in the spelter market really commenced on the issuance of these statistics.

It is usual at the beginning of the year for the U. S. Geological Survey to issue a like statement, but for some unexplained cause this statement has not been forthcoming and this has caused considerable comment. It was generally believed that the only excuse that could be made by the U. S. Geological Survey was that they had experienced great difficulty in getting producers to report earlier in the year. But if this is the explanation it was quite unsatisfactory, because the Engineering & Mining Journal have been able to get reports, they state, from all the ore smelters, and many of these smelters inform us that they would have been very glad to give their reports to the Government had they been asked to do so.

There has since been issued this week by the Engineering & Mining Journal a very long and interesting article on spelter statistics for 1914 by the well-known authority Mr. W. R. Ingalls from which we take the following, and in doing so desire to say that since the government has failed to act in the matter this trade paper deserves great credit for their exhaustive investigations, although we believe this estimate of stocks Jan. 1 cannot be accepted as final since they were arrived at it only by **estimating** stocks held by four producers. They may have been those who were carrying large stocks, but were interested in exploiting the market. This interesting report reads in part as follows:

Revised and complete statistics of the zinc industry in 1914 are given in this article, reports having been received from all of the ore smelters. Reports from the dross and scrap smelters are only partially complete, however, and the production of their class of spelter is estimated on the basis of partial returns, but reports were missing only from a few of the smaller concerns. Certain smelters who treat both ore and dross are included with the ore smelters.

Production—The total production of spelter by ore smelters in 1914 was 362,361 tons, of which 8,380 tons was derived from galvanizers' dross, skimmings, scrap, etc., and the remainder from ore. The production from dross, skimmings, scrap, etc., was 8,761 tons in 1913, 7,447 in 1912, 9,020 in 1911,

and 7,595 in 1910. These data do not include the production by concerns which treat dross and scrap only, whose output amounts to about 20,000 tons per annum.

Dross and Scrap.—The amount of the recovered spelter that should properly be counted statistically is uncertain. A good deal of scrap zinc is remelted in the manufacturing plants, where it is made, eg., in every rolling mill, and such remelted zinc should not, of course, appear in any statistical enumeration. On the other hand, certain smelters buy and redistill and subsequently sell as spelter, often of excellent quality, what was distinctly a waste product. This is obviously an addition to the new supply of spelter and should be recognized just as is that which the ore smelters recover from dross, skimmings, etc. In my estimate I have conformed to this reasoning.

A point that deserves note is the increasing production of spelter from dross and the decreasing exports of that material. In 1911, the exportation was 2,446 tons; in 1912 it was 205 tons, and in 1913 it was only 28 tons. But in 1914 the exportation of dross jumped to 2,325 tons, domestic production of dross-spelter being correspondingly less. I estimate the product redistilled from dross, skimmings, etc. (by works treating this material only), at 13,500 tons in 1911, 15,000 tons in 1912, 20,500 tons in 1913, and 18,000 tons in 1914; and probably these figures are underestimates rather than overestimates. In taking a statistical view, this spelter must be added to the spelter obtained otherwise, it being sold in the same way.

Adding to the reports of the dross smelters the metal made by ore smelters out of dross, skimmings, etc., there was a total recovery of 26,230 tons of secondary spelter in 1914, compared with 29,264 tons in 1913.

Spelter Stocks—Fifteen smelting companies reported by telegraph stocks on December 31 aggregating 19,500 tons. Six companies reported works idle. Three companies, one very small, failed to report their stocks. Estimating 4,000 tons for them, the total stock in the hands of smelters on December 31 was 23,500 tons.

Smelting Capacity.—The capacity of the zinc-smelting works of the United States at the end of 1914 is given in an accompany-

ing table. Among the active plants, Sand Springs was new in 1914, having begun production in the third quarter. The list is classified according to (1) active plants; (2) plants that are maintained in working order but which are of uncertain future; (3) inactive plants; and (4) new plants building.

At the end of 1914 returns from nearly all of the plants of class 1 indicated that about five-sixths of this capacity was then in use. All of the plants of classes 2 and 3 were idle, and had been so during most of 1914. Of the two plants in class 4 that at Lange-

loth had just put its first furnace in operation, while the new Granby plant was understood to be nearly ready to run.

Among the plants of class 1 the Matthiessen & Hegeler Zinc Company was the only one having new capacity in preparation, this building a new furnace of 912 retorts. Among the plants of class 4, the American Zinc & Chemical Company had 1,728 retorts building.

In 1914, about 362,000 tons of spelter were produced in 22 works using about 83 per cent of their capacity. Old works if oper-

Production of Spelter

(In tons of 2,000 lb.)

By ore Smelters.

States.	1910.	1911.	1912.	1913.	1914.
Colorado	6,564	7,477	8,860	8,657	8,152
Illinois	79,570	88,681	94,902	111,551	130,587
Missouri-Kansas	112,182	106,173	111,761	85,157	53,424
Oklahoma	34,760	46,333	76,837	83,230	92,467
East	43,980	47,172	56,278	69,687	77,731
Totals	277,065	295,836	348,638	358,262	362,361

By Dross and Scrap Smelters.

	1910.	1911.	1912.	1913.	1914.
	11,350 (a)	13,500 (a)	15,000 (a)	20,500 (a)	18,000
Total Production of Spelter.					
	1910.	1911.	1912.	1913.	1914.
Ore smelters	277,065	295,836	348,638	358,262	362,361
Dross smelters (a)	11,350	13,500	15,000	20,500	18,000

Totals	288,415	309,336	363,638	378,762	380,361
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(a) Estimated. It is difficult to obtain reports from all of these smelters. The large increase in production from 1912 to 1913, as here reported, was due in part to a more complete statistical accounting.

Spelter Production in 1913 and 1914 by Quarters.

(Reports of Ore Smelters Only)

(In tons of 2,000 lb.)

District.	1913.			
	I.	II.	III.	IV.
Illinois	27,924	28,723	26,118	28,986
Kansas-Missouri	22,006	23,820	19,204	20,127
Oklahoma	24,430	21,840	18,502	21,458
Others (a)	20,722	20,155	19,238	18,211
Totals	92,082	94,538	83,062	88,782
1914.				
Illinois	31,005	32,482	32,512	34,788
Kansas-Missouri	14,939	14,650	14,193	14,634
Oklahoma	22,565	22,660	22,947	24,999
Others (a)	20,700	20,705	24,810	22,661
Totals	89,209	90,804	94,462	97,082

(a) With the exception of one plant in Colorado, these are all Eastern works.

ated at full capacity were consequently able to produce about 56,000 tons more of spelter than in 1914. In addition thereto there was a new plant of 17,500 tons capacity

(terms of tons of spelter) immediately available, and furnaces of nearly 11,500 tons capacity in construction and so far advanced as to become available early in 1915. There

Zinc Smelting Capacity of the United States.

(Number of Reports at End of Years)

Name.	Situation.	1913.	1914.
Active.			
American Zinc Co. of Ill.	Hillsboro, Ill.	3,200	4,000
Bartlesville Zinc Co.	Bartlesville, Okla.	5,184	5,184
Bartlesville Zinc Co.	Collinsville, Okla.	8,064	8,064
Clarksburg Zinc Co.	Clarksburg, W. Va.	2,712	1,824
Edgar Zinc Co.	St. Louis, Mo.	2,000	1,100
Edgar Zinc Co.	Cherryvale, Kan.	4,800	4,800
Granby Mining & Smelting Co.	Neodesha, Kan.	3,760	3,840
Grasselli Chemical Co.	Clarksburg, W. Va.	5,760	5,760
Grasselli Chemical Co.	Meadowbrook, W. Va.	6,912	6,912
Hegeler Zinc Co.	Danville, Ill.	1,800 (a)	1,800
Illinois Zinc Co.	Peru, Ill.	4,640	4,640
Robert Lanyon Zinc & Acid Co.	Hillsboro, Ill.	1,600	1,840
Lanyon-Starr Smelting Co.	Bartlesville, Okla.	3,456	3,456
Matthiessen & Hegeler Zinc Co.	La Salle, Ill.	5,256	5,256
Mineral Point Zinc Co.	Depue, Ill.	6,800	9,080
National Zinc Co.	Bartlesville, Okla.	4,480	4,260
National Zinc Co.	Springfield, Ill.	3,200	3,200
New Jersey Zinc Co.	Pelmerton, Penn.	5,760	5,760
Prime Western Spelter Co.	Gas City, Kan.	4,768	4,768
Sandoval Zinc Co.	Sandoval, Ill.	896	896
Tulsa Fuel & Manufacturing Co.	Collinsville, Okla.	6,232	6,232
Tulsa Spelter Co.	Sand Springs, Okl.	—	4,000
United States Zinc Co.	Pueblo, Colo.	1,920	1,920
Totals		94,200	98,592
Operated Irregularly.			
Albion Zinc Smelting Co.	Albion, Kan.	3,200	(b)3,840
American Zinc, Lead & Smelting Co.	Dearing, Kan.	3,840	(a)3,840
American Zinc, Lead & Smelting Co.	Caney, Kan.	2,648	(b)3,648
Chanute Zinc Co.	Chanute, Kan.	(b)1,280	(a)1,280
La Harpe Spelter Co.	La Harpe, Kan.	1,856	(b)1,856
Totals		14,924	14,464
Inactive.			
Collinsville Zinc Co.	Collinsville, Ill.	(b)1,536	(a)1,536
Pittsburg Zinc Co.	Pittsburg, Kan.	(b) 910	(a) 910
Totals		2,446	2,446
New.			
American Zinc & Chemical Co.	Langeloth, Penn.	—	864
Granby Mining & Smelting Co.	St. Louis, Ill.	—	3,240
Totals		—	4,104
Grand totals		109,570	119,606

(a) Inactive throughout year. (b) Inactive during latter part of year. (c) Plant being dismantled. (d) No report received; entered the same as last year.

were also two inactive plants possessing a capacity of about 10,000 tons. I do not include the moribund works of Kansas, which may or may not be put into use. They had a capacity of about 62,000 tons.

The United States possesses therefore, or very soon will possess, first-class capacity for the production of 445,000 tons of spelter per annum; and second-class capacity amounting to 72,000 tons additional that may be used in emergency. These figures take no account of the dross and scrap smelters.

The estimate of a maximum capacity for 517,000 tons of spelter must be discounted, however, being based on the average yield in a year of low price when the ore treated was probably of a relatively high grade. The high price for spelter will draw out lower-grade ore and the average yield per report will be lower. Moreover, the roasting capacity of American smelters is materially short of their distillation capacity, which means that they may not be able to attain the maximum use of their distillation furnaces unless they can secure all the calamine ore that they need, and calamine ore is generally of lower grade than blende. It is best not to undertake to draw fine points, but simply to assume that the smelting capacity of the United States is largely in excess of any use of it previous to the end of 1914.

Imports and Exports.—In 1914 there was a larger exportation of spelter than ever before in the history of the United States, the total being 70,242 tons, including 5,580 tons of spelter smelted in bond. The government figures of the exportation of bonded spelter are a little different from those reported by the smelters. However, this is explained by the difference of the period comprised within the respective reports.

Imports and Exports, By Quarters.

	Ore, Long Tons	Spelter, Lb.	Dross, Lb.
Imports			
I	3,455	509,253	1,288,256
II	4,121	512,123	1,256,559
III	6,849	664,042	355,161
IV	11,329	83,191	1,524,128
Year	46,260	1,759,579	4,604,107
Exports			
I	2,883	842,465	712,777
II	4,297	769,560	0
III	13,419	48,280,632	1,259,570
IV	1,421	90,591,966	3,239,020
Year	9,920	140,484,593	5,051,067

The Government reported the importation of 28,950 long tons of zinc ore in 1913 and 46,260 long tons in 1914. The former figure checked with the smelters' reports of receipts, the latter is much in excess thereof. This difference may be in part explained by an increased supply of incoming ore not yet received by the smelters at the end of 1914.

The exports of zinc ore from the United States dropped 13,815 long tons in 1914 to 9,920 long tons in 1914. This was due chiefly by the impossibility of exporting New Jersey willemite to Belgium and German smelters after the outbreak of the war.

Deliveries.—Estimated deliveries are given in an accompanying table. Deliveries are computed by difference between (A) stocks, plus production, plus imports, and (B) exports plus stocks, but experience shows how futile it is to attempt to compute consumption in that way, and how important a part is played by the stocks in the yards of galvanizers and brass makers, the invisible supply.

Deliveries for Consumption.

	1910.	1911.	1912.	1913.	1914.
Stock, January 1	11,500	23,000	9,323	4,264	40,115
Production	288,415	309,336	363,638	478,762	480,561
Imports	2,452	1,697	11,115	6,100	880
Totals	302,367	334,033	484,076	589,126	421,556
Exports, domestic	1,989	6,872	6664	7,782	64,802
Exports, foreign	4,468	11,270	8,700	6,526	5,580
Stock, December 31	23,000	9,323	4,264	40,115	23,500
Deliveries	274,892	315,598	469,488	514,706	274,474

The statistics in the table of deliveries are incomplete because of their omission of stocks held by dross smelters. Moreover the statistics of stocks and exports, the former reported by the smelters as what was at their works and the latter reported by the government as what was shipped abroad from our ports, do not register exactly. The exports reported in December would register approximately with the stock at the end of November, at which time the stock at smelteries was undoubtedly higher than at the end of December. In other words the deliveries in 1914 computed by the only

method available, which is admittedly imperfect, are probably larger than in fact they were.

Remarks.—The revised report of the production of spelter in 1914 is 1,672 tons more than was reported in the "Engineering and Mining Journal" of January 9, 1915. The increase is due to an underestimate for the smelter who did not report for the preliminary statistics, while several of the other smelters who estimated their output for the last 15 days of 1914 actually made a little more than they expected.

WHAT MAY HAPPEN TO SPELTER.

(From the Engineering & Mining Journal).

"That the recent rise in the price of spelter to a figure previously unheard of in the memory of a generation is an industrial calamity, most good judges are agreed. There is a disagreement as to whether the rise has yet culminated. Some think that the price will go still higher. Others are of the opinion that the climax has been reached and that a declining tendency will exhibit itself in April or May. One man's guess is as good as another's. Conditions are extraordinarily confused, and no man is wise enough to weigh and measure them. Prophecies as to the course of the market are idle. However, there are certain coming events that may be foreseen with some clearness.

"Production in the United States is going to be increased materially. In 1914 about 360,000 tons of spelter were produced in twenty-two works using about 83 per cent of their capacity. Old works if operated at full capacity were consequently able to produce about 56,000 tons more of spelter than in 1914. In addition thereto there was new plant of 17,500 tons capacity (terms of tons of spelter) immediately available, and furnaces of nearly 11,500 tons capacity in construction, and so far advanced as to become available early in 1915. There were also two inactive plants possessing a capacity of about 10,000 tons.

"The United States possesses therefore, or very soon will possess, first-class capacity for the production of 445,000 tons of spelter per annum; and second-class capacity amounting to 72,000 tons additional capacity may be used in emergency. These fig-

ures take no account of the dross and scrap smelters.

"The estimates of a maximum capacity for 517,000 tons of spelter must be discounted, however, being based on the average yield in a year of low price when the ore treated was doubtless of a relatively high grade. The high price for spelter will draw out lower-grade ore and the average yield per retort will be lower. Moreover, the roasting capacity of American smelters is materially short of their distillation capacity, which means that they may not be able to attain the maximum use of their distillation furnaces unless they can secure all the calamine ore that they need, and calamine ore is generally of lower grade than blende. It is best not to undertake to draw fine points, but simply to assume that the smelting capacity of the United States is largely in excess of any use of it previous to the end of 1914.

"That there will be a sufficient ore supply for a largely increased capacity is reasonably certain. We learned in 1914 that a tremendous ore supply was available even on the basis of 5 cents for spelter. The present prices will force production everywhere.

"The New Jersey willemite that used to be exported to Belgium and Germany is of course now being smelted in this country. If we are unable to obtain sufficient calamine from our own sources, we may import it from Sardinia and elsewhere. Blende will doubtless be brought hither from Broken Hill.

"The last may be a potent factor. A det-

erent influence upon expansion is the great risk that a smelter incurs in laying in a stock of ore at the present level of price.

"Another certainty is that the high price for spelter will restrict consumption. In this respect, spelter is more vulnerable than almost any other metal.

"Upward of 50 per cent of the domestic consumption of spelter is for galvanizing, which, after all, is a more or less unnecessary use. Pipe is galvanized because it looks better and is cleaner than black pipe for interior use. The galvanizing of barbed wire affords a certain protection against the weather, but not a protection that is long or sure. As a structural material, there are

many engineers who prefer painted black sheets to galvanized sheets, regardless of price, but when the premium for galvanized sheets becomes excessive, most people discontinue using them and content themselves with black sheets.

"Increased production and diminished consumption are therefore two sure developments of the excessive price for spelter, and they will eventually bring about a collapse of the price. We shall then find ourselves with a greater surplus of producing capacity than ever, and shall experience the long depression in this business that has invariably followed a period of intoxication when the price for spelter has been above 7 cents per pound."

SEVEN MONTHS OF WAR.

(By Warren F. Hickernell, Editor, "The Brookmire Economic Service")

The cost of the European War to date has been about \$10,000,000,000, and if it continues at the rate of about \$46,000,000 a day the cost for one year would be \$16,500,000,000 and about \$23,000,000,000 by next Christmas. And since this huge expenditure must be financed by the issue of Bonds or by the sale of short-term notes to be refunded into Bonds later on, and since the investors who must buy the Bonds now being issued by European Governments are either Banking Institutions or private individuals who are buying Government Bonds with money borrowed from the Banks, we can arrive at a very useful pictorial measurement of the effect of seven months of the War by plotting statistics of Bond prices and Banking Resources.

Instead of charting prices of the Bonds and Banking Resources of different nations we have here selected British Consols, the "Premier Security of the World," and the Banking Resources of the Bank of France, the largest credit institution in the World's greatest investment center, as representative of conditions in Europe. The financial markets and institutions of the United States suffered less than those of Europe, but that the Money Market is an international affair is clearly shown by the downward trend of American Bonds and American Banking Resources when the War broke out last Fall.

The Money Market International.

The Chart also shows very convincingly that the aggregate of building permits and steel orders in the United States is closely related to the price of European Bonds and the supply of funds in the Banks of Europe. It is true that financing of new construction work and building enterprises in the United States is done by American Banks, but, as we stated above, the Money Market is an international affair and anything which affects the European financial markets also affects those of the United States. It is easily possible that the construction of an office building in Minneapolis or Denver or the work on a railroad or street contract in Florida could be brought to a standstill owing to disturbance in the financial markets of Berlin or Paris. If the New York bankers are compelled to send a few hundred million dollars to Europe, it immediately restricts the supply of credit available for new construction work throughout the whole United States.

American Securities Owned in Europe.

This is theoretical, but that the argument is sound looks reasonable from a glance at the chart. Let the skeptic imagine what would happen to new construction work and manufacturing generally in the United States if European investors should dump their holdings of American Securities in New York. The English Prime Minister recently told Parliament that England

could finance the War for several years merely by selling her holdings of foreign securities. English investors hold nearly \$5,000,000,000 of American Railway Securities, and suppose England would sell this amount, or even \$1,000,000,000 of American Bonds during the rest of 1915. How could the Steel and Metal trades prosper with the banks being compelled to take care of this vast amount? Obviously, Banking Resources would decline to the danger point and Bond Prices would drop so low that the promoters of new enterprises could not afford to accept the terms offered by investors for new security issues.

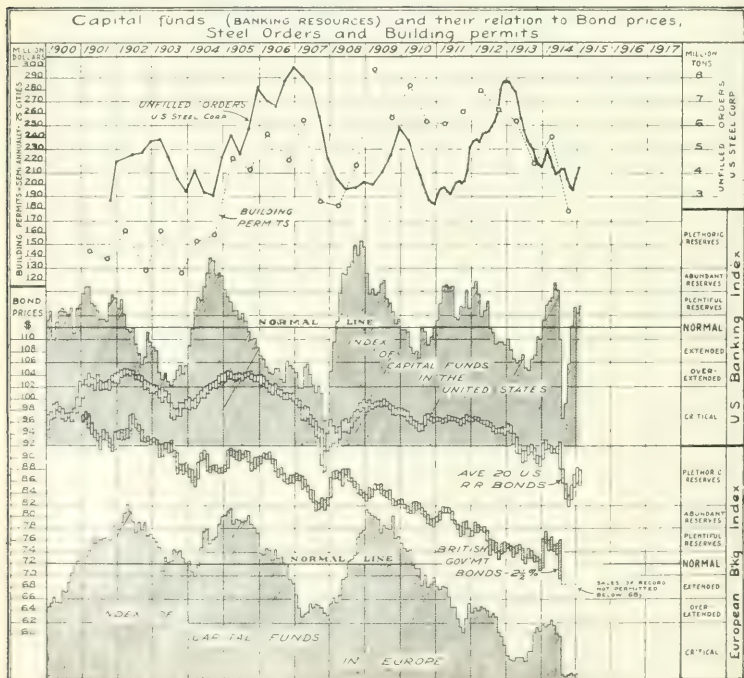
The Trade Outlook.

From "The American Metal Market" of March 1st, we quote regarding Car and Locomotive buying:

"The total for the seven months since August first is 14,000 freight cars, making orders placed since the War began only

about one-fifth of normal. Orders placed in January and February, or since the favorable rate decision, are 7,500 cars, or between one-third and one-half of normal."

What is the outlook for the rest of the year? At the present time the Banking Resources in the United States are fairly comfortable, but not abundant. In Europe, however, credit is badly over-extended and will become worse in the near future. This means that whatever prosperity we enjoy will have to be financed in the United States. Money conditions in this country are comfortable enough to take care of the more urgent requirements of the railroads but ordinarily, about half of the money borrowed by the railroads for new construction work is procured in Europe, and since the railroads will not be willing to borrow extensively when Bond Prices are low and when borrowing would increase fixed charges extensively, it is out of the question to expect a boom in the immediate



future. Boom times can be enjoyed only when capital funds throughout the world are plentiful as during the period 1901-1907. Moreover, although the billions of bonds being issued by foreign governments will be carried for the time being by the great banks of Europe, ultimately they must be absorbed by investors, as fast as they can save the money, which means that European savings for several years to come will flow extensively into bonds representing past expenditures for war purposes, and this will curtail the amount of capital available for American enterprises.

Favorable Considerations.

On the other hand, the grain and cotton crops of the past year are adequate to support whatever degree of business improvement is permitted by the condition of politics and Banking Resources in this country. Moreover, American Securities are the most desirable in the world at the present time, and we may reasonably expect that many European investors will turn to this country for investment after the war is over, disregarding the huge debts to be paid at home. Another favorable

consideration is the fact that for three years preceding the war capital was hoarded in large amounts in Europe in anticipation of political unsettlement and when the war is over we may expect capital now hoarded to come forth with confidence.

Hence, although business is very much depressed and capital will be relatively scarce for some time to come, the sound internal condition of this country together with our strong position in international finance justifies strong hopes regarding the long future. The sentiment that "The man who is a 'bear' on the United States will go broke" lingers with us. Seven months of war, however, have taught the American business' man and investor that his economic welfare is not determined entirely by local environment, but that we are all a part of a universal nation whose boundaries are as broad and as long as the Earth. In measuring the return to prosperity, therefore, he will be interested in the trend of bond prices and Banking Resources in Europe for the next five years as well as the progress of the crops and the election returns in this country.

THE EFFECT OF THE WAR IN AMERICA.

Composite Opinion of Many Business Men.

The result of a highly interesting canvass of business opinion upon current financial, mercantile and industrial opinion has just been published by the Stock Exchange house of Harris, Winthrop & Company. The firm wrote 2,000 leaders of thought and action in the large affairs of industry of the United States asking specific data. The replies are contained in a 52-page publication. There is much that these men find to criticize and to suggest, especially as to the administration, legislation concerning business and the present tariff. The book would not be of so much value if it did not deflect so well the minds of so many earnest men.

Its reading impresses one with the conclusions that America has come out of the shock of the European cataclysm wonderfully well, that our business structure is basically sound, and that, while the recovery is slow and may continue to be slower than we in our impatience might desire, it nevertheless will be sure, and all the more lasting.

In the introduction to the book the compilers confess they were puzzled by the problems and paradoxes of commerce and finance that confronted the business world owing to the war. At the beginning of the gigantic conflict the universal belief was that six months of such enormous expenditures and destruction as the struggle entailed would destroy trade, paralyze finance and bring worldwide ruin. Instead there came after a few months of general demoralization an unexampled ease of money here and abroad, a renewal of commercial activity, a tremendous demand for certain commodities and an advance in the values of many securities.

Was the improvement "logically merited" an inversion of cause and effect? There could be no denial of the rise in the tide of business confidence and activity in America, but there was doubt as to its stability. With no precedent to guide them in judging the question, Harris, Winthrop & Company roughly assessed at 2,000 men who be-

their constructive work in the great fields of industry and finance, have proved themselves leaders.

To these men they put seven questions, the answers to which would make clear actual conditions throughout the United States and forecast, so far as is humanly possible at the present moment, the outlook for the future.

The answers are tabulated under seven geographical divisions, comprising the Middle Atlantic States, the New England States, the Central Western and Rocky Mountain States, the Northwestern States, the Pacific States, the South Atlantic States and the Southwestern States. It is possible, therefore, to see at once if a specific condition is general or whether it affects only certain sections of the nation, and if so to what degree.

The questions and the answers were as follows:

1. Have jobbers and distributors in your section large or small stocks of goods at present?

Fifty-five answered large. Six hundred and forty-six answered small.

2. Are those who are able to save investing their savings or allowing them to accumulate in the banks?

Two hundred and sixty answered investing. Four hundred and forty-one answered not investing.

3. Is the unemployment of labor in your section unusually large for the season?

One hundred and twenty-nine answered unusually small. One hundred and thirty-seven answered about as usual. Four hundred and thirty five answered large.

4. Do the higher freight rates which the railroads are now permitted to impose an appreciable burden on domestic trade?

Six hundred and eighty answered that the increased cost of freight is not appreciable. Twenty answered the increased cost of freight has checked business.

5. We have heard it said that "While money is cheap, credit is subnormal." Is this true of your section or can the average borrower obtain the money he requires with the usual facility?

Three hundred and ninety-three answered credit is closely scrutinized. Three hundred and seventeen answered facilities about as usual. Fifty-eight answered accommodation unusually abundant.

6. Are people generally disposed to economize and if so is this economy caused by reduced earning power or increased thriftiness and sobriety of thought and living? (If it be true that "economy is wealth" this is the most important of all the questions submitted.)

Four hundred and fifty-eight answered economy general from necessity. One hundred and eighty-four answered economy general from choice. One hundred and four answered no unusual economy noticeable.

7. What, in your opinion, is the outlook for American business during the year 1915?

One hundred and sixty answered discouraging. One hundred and twenty-one answered normal. Four hundred and twenty answered encouraging.

Jobbers and Distributors Have Small Stocks and Need Supplies.

From the answers it is plain that jobbers and distributors generally have small stocks of goods on hand and need supplies; that of such persons as are able to save, the majority are not investing; that unemployment is unusually large; that the 5 per cent increase in railroad rates has not affected business adversely; that the supply of money is normal, but credit is closely scrutinized; that economy is becoming general both from choice and necessity, and that the general outlook is encouraging.

"How wide a range of business thought is represented may be appreciated from the statement that the writers include bank presidents, railroad presidents, heads of iron and steel mills, farmers, lumber merchants, paper makers, publishers, miners, wholesale grocers, glove manufacturers, heads of insurance companies, lawyers, retired capitalists, makers of sewing machines, firearms, stoves, pulleys, agricultural implements, breakfast foods, rope, tin pins, carriages, automobiles, furniture, flour, electric cranes, screws, millinery, bridges, pianos, office appliances, pharmaceutical preparations, heads of telephone and telegraph companies, sugar mills, distillers, breweries, woolen mills, cotton mills, cottonseed mills, gas plants, electric light and power companies, dealers in lumber, coke, pig iron, general merchandise, sand and gravel, valves, varnishes, drills, stationary, cement, plate glass, ink, asphalt, leather, railroad experts, consulting engineers, land agents, physicians, sugar plant-

ers, hotel owners, car manufacturers, wholesale druggists, etc.

It is not in the set answers but in the detail with which the respondents analyze affairs in their territory, and illustrate their observations that the reader gets the full significance of this searching and important

inquiry. In period of stress or profound event the strength of the individual is most manifest. By reason of this fact the letters have a vigor and a deep sincerity that would not be so apparent at another time perhaps.

In all 701 replies to queries were received. These are summarized in tabular form as follows:

Question.	Answer.	Mid. Atlantic States (1)	New Eng. States (2)	Central West & Rocky Mount'n States (3)	Northwest'n States (4)	Pacific States (5)	Sth Atlantic States (6)	Southwest'n States (7)	Totals.
1 Have jobbers and distributors in your section large or small stocks of goods at present?	Large.	10	2	19	15	3	5	1	55
	Small.	119	82	259	83	47	52	24	646
2 Are those who are able to save, investing their savings or allowing them to accumulate in the banks?	Investing.	52	32	99	43	15	9	10	260
	Not investing.	77	52	179	55	35	26	17	441
3 Is the unemployment of labor in your section unusually large for the season?	Unusually small.	19	21	54	13	8	8	8	129
	About as usual.	18	18	37	30	19	6	7	137
	Unusually large.	92	45	187	55	23	21	12	435
4 Do the higher freight rates which the railroads are now permitted to charge impose an appreciable burden on domestic trade?	Increased cost of freight is not appreciable.	122	82	275	90	49	35	27	680
	Increased cost of freight has checked business.	7	2	2	8	1	1	1	21
5 We have heard it said that "While money is cheap, credit is subnormal." Is this true of your section or can the average borrower obtain the money he requires with the usual facility?	Credit is closely scrutinized.	73	42	161	44	30	24	19	393
	(*) Facilities about as usual.	57	49	119	56	18	6	12	177
	Accommodation unusually abundant.	10	5	25	12	3	1	1	58
6 Are people generally disposed to economize, and if so is this economy caused by reduced earning power or increased thriftiness and sobriety of thought and living? (If it be true that "Economy is wealth" this is the most important of all the questions submitted.)	Economy general from necessity.	95	52	188	49	32	27	17	458
	(*) Economy general from choice.	28	27	77	33	12	2	1	184
	No unusual economy noticeable	21	11	40	18	4	4	1	104

What in your opinion is the outlook for American business during the year 1915?	Discouraging.	5	23	60	14	9	15	4	160
	Normal.	18	29	42	24	7	4	6	121
	Encouraging.	76	41	176	60	34	16	17	420
Number of replies		129	84	278	98	50	35	27	701

* Some correspondents have answered both these questions affirmatively. The replies to Question 5 indicate that in a large majority of cases the supply of money is normal, but that credit is closely scrutinized. The answers to Question 6 suggest that economy is becoming general from both choice and necessity.

(1) Delaware, Maryland, New Jersey, New York, Pennsylvania.

(2) Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.

This summary speaks for itself and requires but little explanatory comment. The fact that 93 per cent of the replies indicate that stocks of goods in the hands of distributors are small argues well as to the future demand, for these stocks must be replenished.

That 60 per cent of our answers indicate that people are allowing their savings to accumulate is reassuring as to the future of the investment market and to those who will have legitimate use for credit as business improves.

The unemployment reported is large, but some of our correspondents, in letters subsequent to their first replies, say that within the last two weeks a considerable number of men previously idle have found work.

One of the most important revelations of the summary is that the advance in freight rates recently authorized by the Interstate Commerce Commission will not be appreciably felt anywhere. Out of all those who have replied to our inquiries only twenty-one say that there is any commercial consciousness of the higher freights, and most of those who take this view are in the lumber trade, which seems to be especially depressed just now. The Interstate Commerce Commission should be gratified to know that the action which they took with much deliberation has been so generally approved of by the business community.

A preponderance of the replies indicates that credit is closely scrutinized and that the superabundance of money is as yet confined to the larger centers. This is natural, for the season of the period of business depression is always a season of more

(3) Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Missouri, Nebraska, Ohio, Utah, West Virginia.

(4) Idaho, Michigan, Minnesota, Montana, North Dakota, South Dakota, Wisconsin.

(5) California, Nevada, Oregon, Washington.

(6) Alabama, Georgia, Florida, North Carolina, South Carolina, Virginia.

(7) Louisiana, Mississippi, Oklahoma, Tennessee, Texas.

ey at the larger centers, and a closer scrutiny of credit that results in the elimination of those who were hopelessly crippled by the panic, but were temporarily carried along by bankers until better financial conditions permitted of their rehabilitation through bankruptcy or reorganization, with less shock to the community and with greater salvage to their creditors.

That economy is general is evident, and that in many instances it is deliberate and is being followed as a matter of choice and not of necessity is reassuring. Of all the Anglo-Saxon race Scotchmen are as a class probably the most constructive as well as the most philanthropic, and their achievements in both directions are largely due to the fact that in Scotland economy is regarded as a virtue and extravagance a sin.

"We welcome, therefore," say Harris, Winthrop & Company, "every evidence that Americans are reverting to the habits of the Scotchmen. But whether economy be practiced as a matter of compulsion or preference, it is reassuring to know that it is becoming general, for the disposition of the average American to spend his money for impermanent luxuries or trifles, instead of investing it in the securities of productive enterprise, has been one of the chief reasons for the financial bondage of the United States to Europe.

"The last question asked called for an expression of opinion rather than a statement of fact. The answers to it, therefore, reflect a state of mind and describe psychological conditions and not tangible realities. Inasmuch, however, as values are largely a matter of sentiment, conditions of mental attitude and not of sense are most impor-

tant things in life except charity, it is most important to know that 80 per cent. of the representative business men who have contributed to this symposium take an encouraging view of the future, and at least refuse to admit that there is any abnormal business depression within the range of their commercial vision.

"It will be noticed that in several cases there is a disposition to charge the political party of the administration now in power with responsibility for the ills with which

the body commercial has been afflicted.

"We believe that a good government should be the concern of every business man, but that partisan adherence to a political party is the worst way to make good government possible.

"With this statement we dismiss any discussion of the present political condition except to call attention to a suggestion that has been received from some of the leaders that we repeat."

NICKEL AND THE WAR.

The manufacture of nickel is intimately connected with the production of war material. The Canadian Copper Company, of Sudbury, in Canada, produces the largest quantity of ores and mattes of nickel, having an annual output of about 22,000 short tons (2,000 lbs.) of that metal. The Mond Nickel Company smelts ores to mattes equal to 2,600 tons of nickel; the *Société du Nickel*, with other companies in New Caledonia, ship 8,000 tons; Norway raises ores producing 400 tons; and in Prussia are extracted 13,000 tons, from which 1,000 tons of nickel are obtained. Canada exports nickel, in the state of mattes containing 50 per cent. of that metal and 25 per cent. of copper, to Constable Hook, New York, where they are treated, and the metal refined by the International Company. The Mond Nickel Company ships its mattes to Swansea for reduction, whilst the ores and mattes derived from New Caledonia are sent partly to Havre and partly to Germany; the Norwegian ores are smelted at Fyke and refined at Christiansand. It would appear, therefore, that the production of metal is thus distributed; Great Britain, 2,600 tons; France, 1,900; United States, 2,000; Norway, 400, and Prussia, 4,400

tons yearly. Of the 22,000 tons produced in 1913 by the United States, 14,000 were exported. Germany during the same year exported 1,800 tons and imported 3,600, which were obtained from Norway and the United States. The consumption of nickel in Germany is 6,200 tons, or about the fifth part of the world's annual production. Since the commencement of the war the price of nickel has advanced from £169 to £205 per English ton. Nickel steel contains 3 to 4 per cent. of that metal, so that a ton will alloy 30 tons of steel. Conceding that two-thirds of the nickel output is employed in the manufacture of steel, there would result an annual production of 600,000 tons of nickel steel. The question of to-day is to prevent the importation of nickel into Germany. It has been suggested that its exportation from Canada in any form should be prohibited. This would doubtless solve the problem, but would entail the inconvenience of closing down the Constable Hook works, and a scarcity of nickel. Probably England will be satisfied by intercepting vessels loaded with materials containing nickel. *Metals*, London, London.

THE FOREIGN IRON INDUSTRY IN WAR TIMES.

Reports of Two German Authorities.

The *Iron and Coal Trades Review*, of London, abstracts from German newspapers the following account of the iron and steel industries abroad as affected by the war as developed by German authorities.

The Association of German *Eisenhüttenleute* met at Duesseldorf on January 31st under the presidency of Herr Springorum, and in the presence of high military authorities, to consider, among other matters, two Papers on "The Iron Industry during the War." Disregarding uncomplimentary remarks in regard to Great Britain, the Papers contain much information of particular interest at the present time, although in many cases the observations made must be accepted with a certain amount of reserve. The authors were Herr Schrodter and Dr. Bemer.

Dr. Schrodter, who has repeatedly stayed at the Grand Headquarters of the army and in connection therewith has visited the districts occupied by the Germans, stated that the displacement in economic conditions had been the greatest in France and Belgium. In France part of ten French Departments, covering an area of 5,187,000 acres and having a population of 3,255,000 persons, were in German occupation and the latter consequently had in their possession 68.8 per cent of the total production of coal, 78.3 per cent of make of coke, 90 per cent of iron ore, 85.7 per cent of the pig iron, 76 per cent of the raw material (including 95.3 per cent of the basic steel and 76.9 per cent of the steel castings), and the entire production of tubes. With the exception of a few minor iron ore fields the whole of the output of iron ore lay within the scope of German arms, and the same observations applied to the whole industry which extended from the Belgian frontier to the northwest coast. A considerable portion of the coal fields was similarly held, so that the supply of coal for France appeared very difficult, especially as Great Britain was deficient in effecting deliveries.

As to the engineering industry, which was concerned with the building of locomotives and railway wagons, the author remarked that the greatest portion was in German

ownership, and only one works still belonged to the French, namely, at Belfort. The situation was still more unfavorable for the production of wrought tubes, as the new works at Aulnoy-Moutbard, Louvroil, Valenciennes, Solemnnes and Hautmont, where the Mannesmann process and the Briede process were both used, were all in the districts of occupation, so that the French also had to requisition supplies of tubes from Great Britain and America.

The Use of French Stocks.

The well-filled stocks at the French rolling mills, foundries and other works—the author proceeded to remark—permitted the German troops in the trenches to be furnished rapidly with almost all articles required. In the district of Sedan and Charlesville, Herr Kielhorn, a naval engineer, had arranged no fewer than 14 small works in which he was able to produce or supply at any time intrenchment tools of all kinds, barbed wire, and corrugated sheets for covering in communication trenches, together with, at other places, bomb throwers, protecting shields, "lighting pistols," tubes and points, and portable field kitchens. The French workmen who had remained behind had to render help in return for food, and the restored electric lighting stations furnished light and power, including light to the trenches to some extent. Herr L. G. Jung, of Neuhütte, also rendered similar services by the opening of works in the vicinity of Chauny for the manufacture of bomb throwers, protective shields, hand grenades, etc.

Great Britain and the United States.

Dealing with the question of the British iron industry, the author observed that they had learned that additional blast furnaces had been started since the outbreak of the war, but nothing was reported as to the production. On the other hand, they heard that the provision of raw materials—coal, on account of scarcity of miners and of stricks (sic), and iron ore, particularly for hematite pig iron, owing to reduced supplies from abroad—was becoming more difficult. The shipbuilding industry was said to be well occupied and the whole of the

iron industry was declared to be working feverishly for the army requirements of Great Britain and France, without, however, being able to satisfy them. In the meantime the export trade had received a mighty blow.

Concerning the United States, the author stated manufacturers in that country, as in Great Britain, had reckoned on depriving Germany of a large portion of her export trade, especially in the States of South America. That calculation, however, had proved to be incorrect, as not only there but also in North America trade and industry were greatly depressed, and it would be necessary to go back six years to find such a low production of pig iron as at present. A regrettable occurrence was that America recognized "no moral obligation to grant an honorable issue of the fight between Germany and her enemies, but on the contrary favored the latter by the delivery of all kinds of arms and ammunition."

Russia and Belgium.

The district of occupation in Russia, to which the author next referred, contained an iron industry to the extent of about 25 per cent of the Russian coal production. Affairs were therefore also unfavorable there to the raising of coal, especially as the working of the railways was said to be defective; and as deliveries to Russia were almost barred, the scarcity of guns and ammunition was explicable.

In Belgium the iron industry was almost entirely paralysed by the war. The country had hitherto procured her iron ore from abroad, and on the other hand had exported about 75 per cent of her manufactures. Under existing conditions there was therefore no prospect of the iron industry being able to resume to any extent, although the German administration was endeavoring to restore industrial activity. This effort had succeeded in the coal industry, which had now nearly reached one-half of the normal production.

Italy, Etc.

The Italian iron and steel industry, which also engaged the attention of the author, was declared to have been working under a restricted production previous to the war. But since October it had been well employed, with the exception of the smaller works in the north, on large Government orders

for armaments. The works, however, were encountering difficulties in obtaining raw materials, and had also to reckon with a considerable advance in prime costs. In Sweden the iron and steel industry had been keenly affected by the war, but the situation in Austria-Hungary presented the same features as in Germany. Notwithstanding the invasion of Galicia by the Russians, the coal mines and iron and steel industry had not been directly affected by the war, but only indirectly through labor conditions as well as through the alterations in the conditions of production and sale.

Dr. Schrödter, referring finally to Germany, stated that the accommodation of industry to the changed conditions brought about by the war had been completed. Work was on hand everywhere, although many establishments, especially in the more highly manufacturing branches, had greatly suffered. After referring to defects in the allocation of war orders, the speaker discussed the possibility of obtaining raw materials and mentioned in particular the obligation due to German science and engineering which, through new inventions and processes, were furnishing more than sufficient substitutes for the raw materials in which they were lacking, whilst in conclusion he remarked that "the policy of Great Britain in the contraband question of copper was injuring the most both France and Belgium."

German Labor Conditions.

Dr. Beumer, who first discussed the monetary conditions of Germany from a national economic point of view, as compared with those of enemy countries—naturally to the advantage of the former—then proceeded to refer to the economic conditions in Germany. He stated that the iron and steel trades had admirably accommodated their works to the completely changed circumstances, but their situation was not brilliant and they had continually to fight against difficulties which would still require the greatest exertion and energy. In the first place the cost of production had become higher owing to the war, and sale prices were only moderately satisfactory, as many works had maintained operations out of consideration for the officials and workmen who had not been withdrawn. It was therefore only natural that the works should attempt to obtain remuneration for

which had been rendered impossible by the consequence of "a parasitic intermediary trade" (the merchants). A specifically strong influence on the increased working expenses was also exerted by the course of the conditions. Unemployment only existed in imagination.

and with rare exceptions it could be said that there in Germany was a demand for work and abundant opportunity of doing so at the present time. What unemployment did exist was wholly in the case of the work-shy, but was recognized in the coal and iron and steel industries, also by the Trade Unions, and the work-shy had assumed a regrettable extension. In the opinion of the speaker, energetic measures should be taken against this system by the military authorities, and the men should be compelled to work; secondly, the employment of prisoners of war should be undertaken to a larger extent than now, and thirdly, the unemployed in other districts should be requisitioned in order to assist in the work, as indeed had been done to some extent prior to the war on an interchange system through the Imperial Central Bureau for labor exchanges.

The author then proceeded to refer to the lack of consideration shown by various branches of the trade in demanding full deliveries of coal from the Coal Syndicate, when owing to the scarcity of miners the latter was only able to raise from 50 to 60 per cent of the tonnage won in times of peace. Although those inconsiderate firms seemed indisposed to follow the example

of the Minister of Railways and also use a quantity of coke in connection with the firing of their boilers, if the production of coal further decreased they would be glad to have even coke at their disposal.

The German Export Trade.

If so far as the export trade had been admissible without endangering the demands of the country, the Central Bureau for export permits for iron and steel products, which was formed jointly with the Imperial Home Office, had rendered possible a certain measure of export in these trades. As, however, many countries had a perceptible shortage of the war material produced by the iron and steel industry, they were seeking to procure the supplies which were lacking by the adoption of "all kinds of pretences and other methods of deception." With the co-operation of their syndicates, however, the German works had adopted measures to defeat those endeavors. In conclusion, the speaker expressed the hope that orders for articles of peace would increase before long, and thus strengthen the home market, which had shown itself to be the great bulwark of the whole national economy during the war.

In spite of the rather optimistic tone of these two authors, we find that according to the "Reichsarbeitsblatt," the number of unemployed on the lists of the German Trade Unions in the fourth quarter of 1914 was 149,330, or 26.8 per cent, being 119,642 more than in the corresponding quarter of 1913, and 182,918 more than in 1912. [Editor Iron and Coal Trades Review.]

COL. BOPE ON LEGISLATION.

Col. H. P. Bope, vice president and general manager of sales of the Carnegie Steel Company, addressed the Chicago Traffic Club on "The future relations of manufacture to transportation" at the Club's annual dinner February 25th, urging closer co-operation between the railroads and those from whom they buy. In the past railroad orders have been poorly distributed as to time, whereas if they were placed regularly from month to month and year to year manufacturing costs would be reduced and both buyer and seller benefited. Water is so much needed for industrial purposes that more and more transportation must be by

railroad.

With respect to legislation, Col. Bope said:

"The second problem which has a decided effect on the future relations of manufacturing and transportation is that of legislation. It is difficult to speak with patience of much of the legislation that has been enacted during the past decade. We have apparently gone 'legislation-mad'. Regulation of everything under the sun has been attempted. Paternalism has run riot, with so far but little good results and an immense increase in cost of government without compensating return. To go no

further back than the 63rd Congress, now about to expire, there have been introduced in the Senate over 7,000 bills and resolutions and in the House over 23,000. Ever since 1909 we have had almost continuous sessions of Congress. Add to this enormous volume the enactments of State Legislatures and it is not surprising that the gray matter under the thatch of the lawyer has gone stale from the very demands made upon it. Codification and re-codification has been ineffective to digest this enormous mass of legislation, some ill-advised, much ineffective and little of real permanent value. The railroads have had more than their share of these enactments. Therefore another form of co-operation may I suggest for your consideration. This seems to be the day of Government by Commission. It has not yet been fully demonstrated that such Government is bound to be successful. It is in an experimental stage. For one I do not feel that the expansion of trade in this country, so much of which is due to the railroads, could or would have been possible had the Inter-State Commerce Commission been in existence during that period when railroad building was so active, and when faith in the future was so large an element in the development of the country. It was no time for restrictive measures, and while it may be conceded that some errors were made, the conditions

were created by the people themselves. But that is past history and too much has been exacted for past blunders. What is a remedy for this excessive legislation? Let us so amend our State Constitutions, or if this be not necessary, by enactment create one more commission, composed in part of good lawyers and in part of good business men, thoroughly familiar with commercial conditions. The duty of this Commission shall be to pass upon all proposed legislation before it is even submitted to the Legislature. If it is unnecessary then all expense connected with the consideration of a measure can be avoided, for it is passed upon first as to its legality secondly as to its commercial necessity. Many measures are introduced purely for political effect in a member's own district and have no relevancy to general conditions. To such measures a Commission can be merciless and possibly we can eliminate the petty politician. Certainly the number of measures can be reduced and more intelligent legislation can be expected. No really good measure will be turned down by such a Commission and then it can take its usual course. Such a Commission should be non-partisan for its object and its duty would be to prevent vicious and unnecessary legislation, thereby saving expense and promoting better legislative action."

TOPICAL TALKS ON IRON.

XXIV. How Materials are Sold: Scrap, Pig Iron and Unfinished Steel.

Of the total of 30,960,152 tons of pig iron produced in 1913, 9,523,885 tons, or 30.8%, was produced for sale. Of the 1914 production of 23,332,244 tons, 7,362,980 tons, or 31.6% was made for sale. The balance was produced by consumers, almost exclusively the large steel works. Substantially all the foundry and malleable iron produced is sold, while of the basic iron 15.2% was made for sale in both 1913 and 1914 and of the Bessemer and low phosphorus iron 10.4% was made for sale in 1913 and 6.7% in 1914.

The low phosphorus iron is sold chiefly to steel casting works practicing the acid open-hearth process, and at flat prices. The Bessemer iron is normally sold chiefly to ingot mold foundries practically all the balance going to acid open-hearth steel

plants and to iron foundries that desire this grade to use as a strengthener. In times of particularly great activity the large steel works have in times past bought considerable tonnages of merchant Bessemer iron but ordinarily they do not buy at all. Hitherto considerable tonnages of Bessemer iron have been sold to ingot mold foundries at flat prices but conditions have so changed that in future the great bulk of the deliveries will be on long term contracts, subject to monthly fluctuation of price according to the market and it will be seen that conditions are such that there will be very little business at flat prices to make this market. The Bessemer iron market will in future probably fluctuate with basic iron preserving a more or less stable differential determined by the difference in

COMPARISON OF METAL PRICES.

	Range for 1913.		Range for 1914.		Range for 1915.		Closing.
	High.	Low.	High.	Low.	High.	Low.	Feb. 27.
Pig Iron.							
Bessemer, valley	17.25	14.25	14.25	13.75	13.75	13.60	13.60
Basic, valley	16.50	12.50	13.25	12.50	12.50	12.50	12.50
No. 2 foundry, valley	17.50	13.00	13.25	12.75	12.75	12.75	12.75
No. 2X fdy. Philadelphia..	18.50	14.50	15.00	14.20	14.50	14.25	14.50
No. 2 foundry, Cleveland ..	17.75	13.50	14.25	13.25	13.25	13.25	13.25
No. 2X foundry, Buffalo..	18.00	13.00	13.75	12.25	13.25	13.25	13.25
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	13.50	13.25	13.50
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	9.75	9.50	9.50
Scrap Iron and Steel.							
Melting steel Pittsburgh ..	15.00	10.75	12.00	9.75	12.50	11.00	11.15
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	9.25	8.75	9.25
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	10.75	10.75	10.75
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	11.50	11.00	11.25
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	11.00	9.50	10.75
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.15	1.15	1.15	1.15
Iron bars, Philadelphia....	1.67½	1.22½	1.27½	1.12½	1.15	1.12½	1.12½
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.15	1.10	1.15
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.15	1.10	1.15
Structural shapes, Pitts. .	1.50	1.20	1.25	1.05	1.15	1.10	1.15
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12½	1.12½	1.12½	1.12½
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	1.80	1.80	1.80
Galv. sheets, Pittsburgh..	3.50	2.80	3.00	2.75	3.40	2.65	3.40
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.10	3.10	3.10
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.55	1.55	1.55
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.60	1.50	1.60
Steel pipe, Pittsburgh	79%	80%	79½%	81%	80%	81%	80%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.75	2.00	1.60	1.60	1.55	1.55
Prompt foundry	4.50	2.40	2.50	2.00	2.20	2.20	2.20
Metals—New York.							
Straits tin	51.00	36.75	65.00	28.50	39.50	32.80	38.80
Lake copper	17.75	14.50	15.50	11.30	15.00	13.00	14.68¾
Electrolytic copper	17.65	14.12½	14.87½	11.10	14.70	12.80	14.55
Casting copper	17.45	13.87½	14.65	11.00	14.50	12.70	14.25
Sheet copper	22.00	19.75	20.25	16.50	19.75	18.75	19.75
Lead (Trust price)	4.75	4.00	4.15	3.50	3.85	3.70	3.85
Spelter	7.35	5.10	6.20	4.75	10.25	5.70	10.25
Cooksons antimony	9.87½	7.25	22.00	7.00	23.00	16.00	23.00
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	19.50	18.75	19.12½
Silver	63¾	56½	59½	47½	49½	48.00	48½
St. Louis.							
Lead	4.72½	3.85	4.10	3.35	3.80	3.50	3.80
Spelter	7.17½	4.95	6.00	4.60	10.00	5.55	9.87½
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	12.50	9.00	12.50
London.							
Standard tin, prompts	232	166½	188	132	186	148½	180
Standard copper, prompts...	77½	61¾	66¾	49	64¾	57½	64½
Lead	21½	15½	24	17½	20½	18½	20½
Spelter	26½	20½	33	21½	42½	28½	42½
Silver	293½d	253½d	271½d	223½d	22½d	22½d	23½d

COMPARISON OF SECURITY PRICES.

Range for 1913. Range for 1914. Range for 1915. Closing.

Railroads.	High.	Low.	High.	Low.	High.	Low.	Feb. 26
Atchison, Top. & Sante Fe....	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100 $\frac{1}{8}$	89 $\frac{1}{2}$	100 $\frac{1}{8}$	92 $\frac{1}{2}$	94 $\frac{1}{2}$
Atch. Top. & Sante Fe, pfd.	102 $\frac{1}{4}$	96	101 $\frac{1}{4}$	96 $\frac{1}{2}$	100	96	97
Baltimore & Ohio	106 $\frac{3}{8}$	90 $\frac{1}{8}$	108 $\frac{1}{8}$	97	111	93 $\frac{1}{2}$	95 $\frac{1}{2}$
Canadian Pacific	266 $\frac{1}{4}$	204	220	153	168 $\frac{1}{2}$	153	157 $\frac{1}{2}$
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	40	46 $\frac{1}{2}$	40	40
Chicago, Mil. & St. Paul	116 $\frac{1}{4}$	96 $\frac{1}{4}$	107 $\frac{1}{8}$	84 $\frac{1}{4}$	93 $\frac{1}{2}$	83	84 $\frac{1}{2}$
Eric R. R.	32 $\frac{1}{2}$	20 $\frac{1}{4}$	32 $\frac{1}{2}$	20 $\frac{1}{8}$	27 $\frac{1}{4}$	19 $\frac{1}{2}$	20 $\frac{1}{2}$
Great Northern, pfd.	132 $\frac{1}{2}$	115 $\frac{1}{2}$	134 $\frac{1}{2}$	111 $\frac{1}{2}$	118	102 $\frac{1}{2}$	114
High Valley	168 $\frac{3}{8}$	141 $\frac{1}{4}$	156 $\frac{1}{4}$	118	139 $\frac{1}{8}$	129 $\frac{1}{2}$	137
Louisville & Nashville	142 $\frac{1}{4}$	126 $\frac{1}{4}$	141 $\frac{1}{8}$	125	121 $\frac{1}{2}$	112	112
Missouri, Kansas & Texas ..	29 $\frac{1}{8}$	18 $\frac{1}{8}$	24	8 $\frac{1}{2}$	12	7	10 $\frac{1}{2}$
Missouri Pacific	43 $\frac{1}{8}$	21 $\frac{1}{4}$	30	7	15 $\frac{1}{4}$	6 $\frac{1}{2}$	11
New York Central	109 $\frac{1}{4}$	90 $\frac{3}{8}$	96 $\frac{1}{2}$	77	92 $\frac{1}{4}$	81 $\frac{1}{2}$	82
N. Y., N. H. & Hartford	129 $\frac{1}{8}$	65 $\frac{3}{8}$	78	49 $\frac{1}{8}$	56	43	45 $\frac{1}{8}$
Northern Pacific	122 $\frac{3}{8}$	101 $\frac{3}{4}$	118 $\frac{1}{2}$	97	107	99 $\frac{1}{2}$	101
Pennsylvania R. R.	123 $\frac{1}{4}$	106	115 $\frac{1}{2}$	102 $\frac{1}{2}$	108 $\frac{1}{2}$	103 $\frac{1}{8}$	104 $\frac{1}{2}$
Reading	171 $\frac{3}{4}$	151 $\frac{3}{8}$	172 $\frac{1}{4}$	137	153 $\frac{3}{4}$	140 $\frac{1}{8}$	142 $\frac{1}{2}$
Rock Island	247 $\frac{1}{8}$	115 $\frac{1}{8}$	165 $\frac{1}{2}$	5 $\frac{1}{2}$	1	3 $\frac{1}{8}$	8
Southern Pacific	110	83	99 $\frac{1}{2}$	81	88 $\frac{1}{2}$	81 $\frac{1}{4}$	82 $\frac{1}{2}$
Union Pacific	162 $\frac{1}{4}$	137 $\frac{3}{4}$	164 $\frac{3}{8}$	112	122 $\frac{1}{2}$	115 $\frac{1}{2}$	119
Wabash	6	2	45 $\frac{1}{8}$		1 $\frac{1}{2}$		8

Industrials.

Amalgamated Copper	80 $\frac{1}{2}$	61	78 $\frac{1}{8}$	48 $\frac{1}{2}$	58 $\frac{1}{8}$	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Am. Beet Sugar	50 $\frac{1}{2}$	19 $\frac{3}{4}$	33 $\frac{1}{2}$	19	42	33 $\frac{1}{4}$	38 $\frac{1}{2}$
American Can	467 $\frac{1}{2}$	21	35 $\frac{1}{8}$	19 $\frac{1}{4}$	31 $\frac{1}{8}$	25	26 $\frac{1}{2}$
American Can Pfd.	129 $\frac{1}{2}$	80 $\frac{1}{2}$	96	80	97 $\frac{1}{8}$	89	92 $\frac{1}{2}$
Am. Car & Foundry	56 $\frac{3}{8}$	36 $\frac{1}{2}$	53 $\frac{1}{2}$	42 $\frac{1}{4}$	48 $\frac{1}{2}$	40	40
Am. Cotton Oil	57 $\frac{1}{8}$	33 $\frac{1}{2}$	46 $\frac{1}{2}$	32	48 $\frac{1}{2}$	30	44 $\frac{1}{2}$
Am. Locomotive	44 $\frac{1}{2}$	27	37 $\frac{1}{4}$	20 $\frac{1}{2}$	28 $\frac{1}{4}$	20 $\frac{1}{2}$	21
Am. Smelting & Refining	74 $\frac{3}{4}$	58 $\frac{1}{2}$	71 $\frac{1}{8}$	50 $\frac{1}{4}$	67 $\frac{1}{2}$	56	60 $\frac{1}{2}$
Brooklyn Rapid Transit	92 $\frac{1}{4}$	83 $\frac{3}{4}$	94 $\frac{1}{2}$	79	88 $\frac{3}{8}$	84 $\frac{1}{2}$	86
Chino Copper	47 $\frac{1}{8}$	30 $\frac{3}{4}$	44	31 $\frac{1}{8}$	37 $\frac{1}{2}$	32 $\frac{1}{4}$	35 $\frac{1}{8}$
Colo. Fuel & Iron Co.	41 $\frac{1}{2}$	24 $\frac{1}{2}$	34 $\frac{1}{2}$	20 $\frac{1}{2}$	27	21 $\frac{3}{4}$	23 $\frac{1}{2}$
Consolidated Gas	142 $\frac{3}{8}$	125 $\frac{1}{4}$	139 $\frac{1}{2}$	112 $\frac{1}{2}$	122 $\frac{1}{8}$	113 $\frac{1}{4}$	115 $\frac{1}{8}$
General Electric	187	129 $\frac{3}{4}$	150 $\frac{5}{8}$	137 $\frac{1}{2}$	145 $\frac{1}{4}$	139	139
Interborough Metropolitan ..	19 $\frac{3}{8}$	12 $\frac{3}{4}$	16 $\frac{1}{8}$	10 $\frac{1}{4}$	13	10	12
International Harvester	111 $\frac{1}{2}$	96	113 $\frac{1}{4}$	82	99 $\frac{1}{4}$	92	92
International Steam Pump ...	18 $\frac{1}{2}$	4 $\frac{1}{2}$	97 $\frac{1}{8}$	73	3	3	3
Lackawanna Steel	497 $\frac{1}{2}$	297 $\frac{1}{8}$	40	26 $\frac{1}{2}$	30	28	28 $\frac{1}{2}$
National Lead	56 $\frac{1}{2}$	45	52	40	52	44	47
Ray Consolidated Copper	22	15	22 $\frac{1}{2}$	15	18 $\frac{1}{4}$	15 $\frac{1}{4}$	16 $\frac{1}{8}$
Republic Iron & Steel	28 $\frac{1}{8}$	17	27	18	22 $\frac{3}{8}$	19	19
Republic Iron & Steel, pfd...	92 $\frac{1}{4}$	72	91 $\frac{1}{4}$	75	78 $\frac{1}{4}$	72	74
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19 $\frac{1}{2}$	27 $\frac{1}{4}$	22	25
Texas Co.	132 $\frac{1}{2}$	89	149 $\frac{1}{2}$	112	135 $\frac{1}{2}$	123 $\frac{1}{4}$	127
U. S. Rubber	69 $\frac{1}{2}$	51	63	44 $\frac{1}{2}$	59 $\frac{1}{8}$	51 $\frac{1}{2}$	54 $\frac{1}{8}$
U. S. Steel Corporation	69 $\frac{1}{8}$	497 $\frac{1}{8}$	67 $\frac{1}{2}$	48	74 $\frac{1}{2}$	48	42
U. S. Steel Corporation, pfd...	1103 $\frac{1}{4}$	102 $\frac{1}{2}$	112 $\frac{3}{4}$	103 $\frac{1}{4}$	109	102	104 $\frac{1}{2}$
Utah Copper	60 $\frac{1}{2}$	39 $\frac{5}{8}$	59 $\frac{1}{8}$	45 $\frac{3}{8}$	55 $\frac{1}{4}$	48	51 $\frac{1}{2}$
Va.-Carolina Chem.	43 $\frac{1}{8}$	22	347 $\frac{1}{2}$	17	22 $\frac{1}{2}$	15	20 $\frac{1}{2}$
Western Union Telegraph ..	75 $\frac{1}{4}$	54 $\frac{1}{4}$	66 $\frac{1}{2}$	53 $\frac{1}{2}$	64 $\frac{1}{2}$	57	62 $\frac{1}{2}$

the market price of the ores.

Pig iron is sold chiefly at flat prices, though there are a few important contracts based upon monthly price adjustment according to market fluctuations.

Practically all the malleable and foundry iron is sold at flat prices. Pig iron contracts are adhered to as to prices. There are very rarely any price readjustments. Deliveries, also, are more or less strictly made in accordance with contract terms, but it is not uncommon for buyers to ask postponement of some deliveries for moderate periods, and occasionally to ask for anticipations. There is nothing like a set rule as to the period of delivery contracted for. A given buyer may contract for six months or even a year at one time and at another time buy only prompt lots, though as a rule the various buyers have their regular practice. In a given trade the buyers do not all buy for the same period. A rough guess may be made that less than one-fourth of all the pig iron is sold for either prompt delivery or delivery over a year, the remainder being about equally divided between three and six month contracts.

Miscellaneous scrap is sold to the large dealers in small lots and for immediate shipment. Manufacturing scrap is often sold for periods of three or six months, this practice obtaining particularly with bundled sheet scrap produced by sheet and tin mills. Probably the bulk of the manufacturing scrap that is produced in fabricating steel purchased from mills that produce steel is sold back to these mills on various arrangements and sometimes, it is hinted, at slightly more than the current market price.

One of the functions of the large scrap dealer is to buy at retail from small dealers and producers and sell to consumers in larger lots, hence their sales to consumers are usually for periods of time, usually one to three months.

Manufacturing establishments that produce relatively small quantities of scrap, say a carload a week or less, frequently contract with dealers for periods of time,

providing for settlement to be made against each shipment in accordance with a trade newspaper quotation at the date of shipment.

The market for billets is entirely different from what it was in the nineties, when there were many finishing mills that bought in the open market. Then there were outright sales of large tonnages. In recent years the large buyers of billets have been reduced to a very small number, and these buy on long term contracts, with a monthly price adjustment based upon a spread above the pig iron market. Open market sales of billets are usually confined to small tonnages for prompt shipment, at practically retail prices.

Of sheet bars there remain large buyers, and more than two-thirds of the total tonnage moved is on long term contracts, the contracts practically amounting to an option, so that from month to month or quarter to quarter there are negotiations between the parties to the so-called contract, to arrive at a price basis mutually satisfactory, the consumer having the privilege of buying elsewhere. The practice may be regarded as more or less satisfactory by the parties concerned, but to an outsider it appears to be altogether unbusinesslike and unscientific, or there is not always enough tonnage that is the subject of straight barter to make a legitimate market. Theoretically some of these contracts have been based upon reference to trade paper quotations but as the stream cannot flow as high as its source the trade paper quotations cannot at all times be accurately representative of "the market" when no market is being made.

To be perfectly frank, the writer's opinion is that the reason this system of buying and selling sheet bars is so much in vogue is that the men in the business are, through their training or the multiplicity of their duties, incapable of making up their minds what would be a fair price at which to buy or at which to sell for future delivery. They are not well enough posted to have confidence in themselves.

IRON AND STEEL.

THE SITUATION.

The steel mills are operating at about 60% of their steel ingot capacity. The country is making pig iron at the rate of about 23,300,000 tons of pig iron a year, precisely the average rate maintained in 1914 and 25% under the average rate in 1913, the banner year for tonnage. The merchant furnaces are producing at the rate of about 6,000,000 tons a year, nearly 20% under their average rate in 1914 and nearly 40% under their average rate in 1913.

Pig iron prices are at the low rate that has ruled since late in October. Finished steel prices, as currently quoted, average \$2 a ton higher than in December, the low month, when the average was substantially as low as in November, 1911, the previous low record.

The merchant furnaces have only a moderate amount of business on their books, and less than they had at the beginning of December, three months ago, when there had been a substantial buying movement, about equally distributed between first quarter and first half. So far as the calendar is concerned, pig iron should be ripe for another buying movement. As to prices there is no question. If they could go measurably lower they would have done so already.

The steel mills have hardly any business ahead in the form of actually specified shipping orders, as they have been making up their rolling schedules almost from day to day as specifications came in. They have a moderate tonnage ahead in the form of contracts, and to make these contracts good requires merely the maintenance of the present advanced quotations.

There is scarcely any railroad business on the books of steel producers. Of the total finished steel tonnage the industry is capable of making in a year the rail orders thus far placed for the season constitute not more than two per cent., while the cars ordered since January 1st constitute less than one half per cent. The structural business on books, for railroad purposes, is still less in volume.

The general sentiment in the iron and steel trade is one of waiting for further

developments, and scrutinizing carefully everything that might furnish a suggestion whether the trade improvement that began three months ago is now to begin to pay out or will develop into a further improvement.

The tin plate wire and pipe trades are in fairly satisfactory condition, sheets and merchant mill lines are in indifferent condition, while in structural material and rails the condition is altogether unsatisfactory.

In these lighter lines, in which business has already become moderately good, the orders seem to be for actual consumption, and not for replenishment of stocks in the hands of jobbers or manufacturing consumers. These stocks are extremely low, and the raising of the least question about mill deliveries would cause an extra demand to spring up overnight, for at present the average buyer is in abnormal position, not carrying stocks, and depending upon the abnormally quick delivery the mills have been able to make for nearly two years to keep his business moving comfortably.

The buying of material for railroad use and for putting into permanent improvements, factories, hotel and office buildings, bridges and the like, has been extremely light. Without heavier buying in these directions no question about mill deliveries can be raised, but with the establishment of even a moderate rate of buying in these directions the mills as a whole would become comfortably filled and deliveries would become questionable, this doubtless causing a fresh wave of buying.

If the word were passed around that it was time to invest capital in permanent improvements, to take advantage of good times in prospect, the whole iron and steel situation would at once become tense and the mills would quickly fill up, a fact that can be apprehended readily when one reflects what a moderate amount of business has been required to bring the mills up to an operating rate of 60%.

The February Movement.

Actual shipping orders for steel, including specifications on contract, have been slightly heavier in February than in January, but not sufficient to increase materially the rate of operation. There has been

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very little contracting, and little could be expected in the mid-month of the quarter. In bars, plates and shapes there was contracting in December for first quarter, at 1.10c, and it is to be presumed that large buyers who did not at the same time contract for second quarter did so before the mills withdrew their 1.15c quotation for that quarter. This they did early in February, naming 1.10c for February specification, 1.15c for March and 1.20c for second quarter. Promptly at the end of February

the 1.10c quotation disappeared. The market for these products is under no pressure at present, since there is a larger tonnage to be brought out on 1.10c contracts, by maintaining 1.15c, than could be obtained by cutting 1.15c.

On February 11th wire products were advanced \$1 a ton, making nails \$1.60, and fabricated wire fencing was advanced one-half point to 72½¢ off list. Effecting March 1st there was another half-point advance in fence, while the galvanizing dif-

PIG IRON PRICES.

(Averaged from daily quotations: at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	— No. 2 fdy —				Ferro-		Fur-			
	Bessemer, Basic. No. 2 fdy, Basic No. 2X fdy, Cleve-				Chi-	Birm-	mangan-	nace		
	Valley	Phila.	Phila.	Buffalo.	land.	cage.	ingham.	ese.*	coke†	
1913—										
Jan. . .	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00 3.85
Feb. . .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00 2.60
Mar. . .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00 2.47
April . .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00 2.20
May . .	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00 2.15
June . .	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00 2.20
July . .	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00 2.50
Aug. . .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70 2.50
Sept. . .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50 2.37
Oct. . .	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28 2.10
Nov. . .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00 1.88
Dec. . .	14.95	12.83	13.38	14.75	14.98	13.62	13.76	14.83	10.50	47.00 1.77
Year . .	16.26	14.77	14.87	16.22	16.56	15.12	15.37	16.39	11.73	57.87 2.38
1914—										
Jan. . .	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42 1.88
Feb. . .	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33 1.90
Mar. . .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40 1.92
April . .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00 1.90
May . .	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00 1.83
June . .	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00 1.80
July . .	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50 1.75
Aug. . .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡ 1.74
Sept. . .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00 1.70
Oct. . .	13.97	12.88	12.89	14.00	14.29	13.74	13.73	13.48	10.00	68.00 1.65
Nov. . .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00 1.60
Dec. . .	13.75	12.50	12.75	13.50	14.25	13.13	13.40	13.40	9.67	68.00 1.60
Year . .	13.99	12.84	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80 1.72
1915 . .										
Jan. . .	13.75	12.50	12.75	13.50	14.45	13.25	13.75	13.45	9.50	68.00 1.55
Feb. . .	13.64	12.50	12.75	13.50	14.50	13.25	13.75	13.50	9.50	68.00 1.55

* Contract price, f.o.b. Baltimore; † Prompt, f.o.b. Cleveland; ‡ Cons. & Ship. Co. shipment; § Contract market.

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ferential was increased from 40 to 50 cents per 100 lbs.

Effective February 11th standard steel pipe 6-inch and under was advanced one point, or about \$2 a ton, and galvanized pipe 6-inch and under was advanced three points except for the smallest sizes, which were given smaller advances.

By the middle of February mill quotations of 2.90 and 3.00c on galvanized sheets had entirely disappeared, the mills that were willing to quote at all naming 3.25c, and in the closing week of the month they advanced to 3.40c minimum.

These advances in galvanized products were due to the altogether phenomenal

advance in spelter, which reached 10c or more per pound, about double the average price of the past few years. The advances seem to have done no more than equalize with 10c spelter, yet the mills were left without assurance that they would be able to cover spelter even at that figure.

Trends in the Trade.

There are no definite trends in the trade at the beginning of March. There is the advance in bars, plates and shapes to 1.15c, but that is merely carrying out a program that was understood for several weeks by buyers and sellers alike, so that it produces no new situation.

If there were any definite trends at this

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

Composite

Wire Cut Sheets Tin Finished
Shapes. Plates. Bars. Pipe. Wire,Nails. Nails. Black. Galv. plate. steel.

1913—

	Shapes.	Plates.	Bars.	Pipe.	Wire,	Nails.	Nails.	Black.	Galv.	plate.	steel.
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.72	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79 ³ / ₄	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79 ¹ / ₂	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79 ³ / ₄	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September ..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November ..	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558

Year

Year	1.42	1.41	1.38	79 ³ / ₄	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
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1914—

January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79 ¹ / ₂	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79 ¹ / ₂	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79 ³ / ₄	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November ..	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.45	1.5182

1915—

January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.89	2.80	3.10	1.4554
February ..	1.10	1.10	1.10	80 ³ / ₄	1.38	1.58	1.55	1.89	2.99	3.10	1.4716

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time, they would be of particular significance and it is especially unfortunate from the viewpoint of the market reporter that there are none. The improvement in the steel trade has now extended over a period of three months. If it gave definite promise of extending farther it would be a foregone conclusion that the whole market situation was to be restored to a condition of normal activity, for market swings in the steel industry are either very short, lasting two months but not over three in upward movements, or lasting at least a year. In point of period of duration the present movement presents a favorable aspect, but in point of magnitude it does not. At the beginning of 1914 there was a minor improvement, lasting only a very short time, but it brought the tonnage rate of production far above the present rate.

Pig Iron.

The February pig iron market was colorless, yet there was a moderate degree of activity, confined almost exclusively, however, to small lots for early shipment, and at practically unchanged prices.

PIG IRON IN 1914.

Pig iron production in 1914, as now officially reported, was 23,332,244 gross tons. The production has been known approximately or some time, our early estimate having been 23,200,000 tons. The output was the smallest since 1908, being 300,000 tons under that of 1911, and represents a decrease of 25 per cent. from the banner year production of 1913. Despite the fact that 1914 was a very lean year the output slightly exceeded that of 1905, which in its time was a very good year indeed, and exceeded by 30 per cent. the output in the best year prior to 1905.

Conditions have been such that only the fittest plant facilities could be operated, with the low prices offered for pig iron and finished steel. Of 451 blast furnaces listed as operative, there were only 208 in blast June 30, 1914, and only 164 at the close of the year, leaving 287 idle. Undoubtedly among the 287 idle furnaces there are many that could not operate profitably even at relatively high prices for their product, and a considerable period usually elapses between the time they become commercially unprofitable and the time their owners

consent to having them transferred on the official list to the abandoned class.

The statistics are given in considerable detail elsewhere in this issue. As usual, there was a decline in the relative production of Bessemer iron and an increase in the relative production of basic. While the total production of pig iron decreased 25 per cent. from 1913 to 1914, basic decreased only 23 per cent., Bessemer decreased 32 per cent., foundry decreased 13 per cent., malleable decreased 32 per cent. and forge increased 11 per cent.

It must not be inferred from the fact that the production of foundry iron decreased less than that of steel making iron that the foundry industry or the foundry iron making industry, was less depressed than the steel industry. On the contrary, the important fact is that foundry iron suffered so much in immediately preceding years that it had less to lose. The production of foundry iron had not made a new record in 1913 as did pig iron as a whole. The production of foundry iron, and presumably the production of gray iron castings, constitutes a smaller and smaller proportion of the total. In the three years 1900, 1901 and 1902, the production of foundry iron was 228 per cent. of the total pig iron production, while in 1914 the proportion was only 194 per cent.

The large decrease in malleable iron production, 32 per cent. was due to the particularly light demand of the railroads for new cars and car repair material, as malleable iron castings enter largely into such work. The increase in large pig iron production probably reflects greater activity at cast iron pipe foundries, rather than increased production of puddled iron, for what wrought iron is made chiefly from scrap.

Almost 70 per cent. of the Bessemer and low phosphorus iron made was delivered molten, showing the very great vogue of the direct metal process, for of the remaining 30 per cent. there was necessarily a considerable tonnage cast at works which use the direct process but must upon occasion cast some of their iron.

More striking, indeed, is the fact that precisely two-thirds of the basic iron was delivered molten. A portion of the small tonnage of Bessemer iron made for sale is delivered molten, for the manufacture of

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1913—				1914—			
Oct. 2	Tin plates	3.60	to 3.50	" 21	Bars	1.10	to 1.15
" 3	Wire nails	1.65	to 1.60	" 21	Shapes	1.10	to 1.15
" 16	Plates	1.40	to 1.35	" 23	Plates	1.10	to 1.15
" 21	Plates	1.35	to 1.30	" 30	Tin plate	3.30	to 3.35
" 23	Shapes	1.40	to 1.35	Aug. 5	Tin plate	3.25	to 3.40
" 24	Sheets	2.05	to 2.00	" 6	Sheets	1.80	to 1.85
" 27	Pipe	2½% extra discount		" 11	Sheets	1.80	to 1.85
" 28	Bars	1.40	to 1.35	" 11	Bars	1.15	to 1.20
Nov. 3	Tin plate	3.50	to 3.40	" 11	Shapes	1.15	to 1.20
" 7	Bars	1.35	to 1.30	" 14	Tin plate	3.40	to 3.50
" 17	Sheets	2.00	to 1.95	" 21	Wire nails	1.55	to 1.60
" 25	Bars	1.30	to 1.25	" 31	Sheets	1.90	to 2.00
" 25	Plates	1.30	to 1.25	Sept 16	Tin plate	3.60	to 3.30
" 25	Shapes	1.35	to 1.30	" 26	Sheets	2.00	to 1.95
" 28	Wire nails	1.60	to 1.55	" 29	Bars	1.20	to 1.15
Dec. 2	Sheets	1.95	to 1.90	" 29	plates	1.20	to 1.15
" 3	Shapes	1.30	to 1.25	" 30	Tin plate	3.30	to 3.25
" 4	Plates	1.25	to 1.20	Oct. 5	Sheets	1.95	to 2.00
" 11	Bars	1.25	to 1.20	" 7	Shapes	1.20	to 1.15
" 22	Shapes	1.25	to 1.20	" 22	Sheets	2.00	to 1.90
Dec. 31	Sheets	1.90	to 1.80	" 27	Plates	1.15	to 1.10
1914—				Nov. 2	Pipe (extra 2½% removed)	80% to 81½%	
Jan. 6	Wire nails	1.55	to 1.50	" 5	Bars	1.15	to 1.10
" 7	Sheets	1.80	to 1.85	" 5	Shapes	1.15	to 1.10
" 13	Wire nails	1.50	to 1.55	" 18	Sheets	1.90	to 1.85
" 21	Sheets	1.85	to 1.90	" 24	Plates	1.10	to 1.05
" 30	Sheets	1.90	to 1.95	" 24	Wire nails	1.60	to 1.55
Feb. 2	Pipe	80% to 79½%		Dec. 1	Bars	1.10	to 1.05
" 2	Wire nails	1.55	to 1.60	" 1	Shapes	1.10	to 1.05
" 4	Shapes	1.20	to 1.25	" 1	Tin plate	3.25	to 3.20
Mar. 9	Shapes	1.25	to 1.20	" 4	Wire nails	1.55	to 1.50
" 20	Plates	1.20	to 1.15	" 28	Tin plate	1.20	to 1.10
April 1	Bars	1.20	to 1.15	" 30	Sheets	1.85	to 1.80
" 8	Sheets	1.95	to 1.90	1915—			
" 17	Shapes	1.20	to 1.15	Jan. 1	Bars	1.05	to 1.10
" 20	Pipe	79½% to 80%		" 1	Plates	1.05	to 1.10
" 27	Sheets	1.90	to 1.85	" 1	Shapes	1.05	to 1.10
" 29	Tin plates	3.40	to 3.30	" 11	Wire nails	1.50	to 1.55
May 19	Bars	1.15	to 1.12½	Feb. 11	Wire nails	1.55	to 1.50
" 22	Wire nails	1.60	to 1.55	" 11	Pipe	81½% to 80%	
" 26	Shapes	1.15	to 1.12½	" 15	Galv. sheets	1.90	to 1.85
" 29	Plates	1.12½	to 1.10	" 25	Galv. sheets	1.75	to 1.70
" 29	Wire nails	1.55	to 1.50	Mar. 1	Bars	1.10	to 1.05
June 9	Sheets	1.85	to 1.80	" 1	Plates	1.10	to 1.05
" 19	Bars	1.12½	to 1.10	" 1	Shapes	1.10	to 1.05
" 19	Shapes	1.12½	to 1.10	" 1	Wire nails	1.50	to 1.55
July 20	Wire nails	1.50	to 1.55		differentia		

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ingot molds, but so far as known all the merchant basic iron is cast. Deducting the 1,479,721 tons of merchant basic iron reported from the total production, 9,670,687 tons leaves 8,190,966 tons as the basic iron production of the steel works, while the quantity reported delivered molten is 6,436,146 tons, this being 78.8%.

1914 PIG IRON STATISTICS.

The Bureau of Statistics of the American Iron and Steel Institute presents the official statistics of pig iron production in the United States in 1914, all figures referring to gross tons of 2,240 lbs.

Production by States.

	Number of stacks.			Production, 1914.	
	In.	Dec. 31, 1914.	Out.		
	June 30.	In.	Out.	Total.	
Massachusetts . . .	0	1	1	2	6,594
Connecticut . . .	1	1	2	3	
New York . . .	13	12	15	27	1,559,864
New Jersey . . .	2	1	5	6	
Pennsylvania . . .	76	63	96	159	9,733,369
Maryland . . .	2	2	3	5	195,594
Virginia . . .	8	3	19	22	271,228
Georgia . . .	0	0	4	4	
Texas . . .	0	0	3	3	
Alabama . . .	20	18	30	48	1,826,929
West Virginia . . .	1	1	3	4	
Kentucky . . .	1	1	5	6	236,393
Mississippi . . .	0	0	1	1	
Tennessee . . .	6	4	14	18	216,738
Ohio . . .	43	31	43	74	5,283,426
Illinois . . .	12	7	19	26	1,847,451
Indiana . . .	8	4	6	10	1,557,355
Michigan . . .	8	9	5	14	
Wisconsin . . .	3	3	5	8	329,526
Minnesota . . .	1	0	1	1	
Missouri . . .	1	1	1	2	
Colorado . . .	2	2	4	6	
Oregon . . .	0	0	1	1	267,777
Washington . . .	0	0	1	1	
California . . .	0	0	0	0	
Total . . .	208	164	287	451	23,332,244

Half-Yearly Production by Fuels, 1914.

First half. Second half. Year.

Coke	12,334,829	10,642,036	22,976,856
Anthracite	57,507	33,957	91,464
Charcoal	143,767	120,157	263,924

Total 12,536,094 10,796,150 23,332,244

Bituminous is included with coke. Anthracite includes mixed coke and anthracite. Production in electric furnaces is included, ac-

cording to whether coke or charcoal is used in connection with the current.

At the close of the year there were 389 coke furnaces, with 144 in blast, 20 anthracite furnaces, with three in blast and 42 charcoal stacks, with 17 in blast.

Of the 1914 production of charcoal pig iron 9,294 tons was by cold blast and 254,630 tons by hot and warm blast, including pig iron made with charcoal and electricity.

Merchant Iron.

	1913.	1914.
For sale	9,734,238	7,362,980
For consumption . . .	21,232,063	15,969,264
Total	30,966,301	23,332,244

1914.

Bessemer	527,905
Basic	1,479,721
Foundry	4,393,089
Malleable	671,771
Forge	196,058
All other	94,436

Total 7,362,980

Condition Delivered, 1914.

	1913.	1914.
Molten	16,738,952	11,911,247
Sand cast	6,689,680	4,814,959
Machine cast	6,522,075	5,854,661
Chill cast	1,000,172	738,018
Direct castings	15,422	13,359
Total	30,966,301	23,332,244

Production by Grades.

	1913.	1914.
Bess. and low phos. . .	11,590,113	7,859,127
Basic (mineral fuel). .	12,536,693	9,670,687
F'dy and ferro-sil. . .	5,220,343	4,533,254
Malleable	993,736	671,771
Forge pig iron.	324,407	361,651
Spiegeleisen	110,338	79,935
Ferromanganese	119,495	106,083
White, mottled, direct		
castings, etc.	71,027	49,736
Totals	30,966,152	23,332,244

Washington.—Advance figures compiled by the Interstate Commerce Commission, from reports of revenues and expenses of 146 steam roads in the United States for the month of January, 1915, show as follows: operating revenues, \$177,550,632 against \$192,230,300; operating expenses, \$135,222,240 against \$148,778,459; net revenue, \$42,328,382 against \$43,451,841.

COMPOSITE STEEL.

Computation for March 1, 1915.

Pounds.	Group.	Price.	Extension.
2 1/2	Bars	1.15	2,875
1 1/2	Plates	1.15	1,725
1 1/2	Shapes	1.15	1,725
1/2	Pipe (34.3)	2.00	3,000
1 1/2	Wire nails	1.60	2,400
1	Sheets (28 bl.)	1.80	1,800
1	Thin plates	3.10	1,550
10 pounds			15,075

One pound 1.5075

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	.....
April	1.7600	1.5206	1.7742	1.5337	.....
May	1.7510	1.5590	1.7786	1.5078	.....
June	1.6817	1.5794	1.7719	1.4750	.....
July	1.6701	1.6188	1.7600	1.4805	.....
Aug.	1.6394	1.6784	1.7400	1.5421	.....
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.Melting Bundled No. 1 R. R. No. 1 No. 1 Heavy
Steel. Sheet. Wrought, Cast, Steel, Melt'g.
Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1913—

May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21

1914—

Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.52	11.51	11.71	10.53	9.55

1915—

Jan.	11.40	9.20	10.75	11.25	10.30	9.00
Feb.	11.70	9.25	10.75	11.75	10.70	9.20

COMPOSITE PIG IRON.

Computation for March 1, 1915.

One ton Bessemer, valley	\$13.60
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.50
One ton No. 2X foundry, Buffalo	13.25
One ton No. 2 foundry, Cleveland	13.25
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry,	

Cincinnati (12.40) 24.80

Total, ten tons \$130.65

One ton \$13.065

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.440	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	.....
April	14.375	13.770	16.363	13.850	.....
May	14.242	13.917	15.682	13.808	.....
June	14.032	14.005	14.968	13.606	.....
July	13.926	14.288	14.558	13.520	.....
Aug.	13.874	14.669	14.565	13.516	.....
Sept.	13.819	15.386	14.692	13.503	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.435	13.838	13.073	.....
Year	14.005	14.820	15.418	13.520	.....

**UNFINISHED STEEL
AND IRON BARS.**

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	Iron bars, deliv.— Phila. Pitts. Ch'go.
1913—				
Sep.	24.00*	25.00*	27.37	1.33 1.59 1.37
Oct.	22.50	23.25	26.50	1.32 1.54 1.27
Nov.	20.50	21.50	26.00	1.30 1.45 1.15
Dec.	20.00	21.00	25.25	1.25 1.37 1.12
Year	23.55	26.43	28.39	1.51 1.59 1.45
1914—				
Jan.	20.00	20.25*	25.75	1.24 1.35 1.11
Feb.	21.00	22.00	26.00	1.28 1.35 1.14
Mar.	21.00	22.00	26.00	1.28 1.35 1.15
Apr.	20.75	21.75	25.50	1.23 1.31 1.14
May	20.00	21.00	26.00	1.23 1.29 1.10
June	19.50	20.35	25.00	1.23 1.25 1.08
July	19.50	20.00	25.00	1.19 1.25 1.06
Aug.	20.17	21.08	25.25	1.18 1.25 1.07
Sep.	20.75	21.75	26.00	1.18 1.20 1.07
Oct.	20.00	20.70	26.00	1.14 1.20 1.01
Nov.	19.25	19.75	25.00	1.13 1.20 .96
Dec.	18.75	19.25	24.40	1.12 1.20 .91
Year	20.06	20.82	25.50	1.20 1.27 1.07
1915—				
Jan.	19.25	19.75	24.80	1.12 1.17 .97
Feb.	19.25	19.75	25.00	1.12 1.15 1.03

* Premiums for Bessemer.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	\$10,329,388	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773
September	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	12,521,102
October	14,249,598	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832
November	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401
December	15,069,246	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613

Totals ... \$157,674,394 \$201,271,903 \$249,656,411 \$289,128,420 \$293,934,160 \$199,861,684

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,995
April	132,790	93,285	100,911	117,921	228,149	267,313	259,689	161,952
May	91,543	64,041	109,808	135,306	178,589	307,656	242,353	139,107
June	92,996	69,770	114,724	120,601	174,247	273,188	243,108	144,003
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	114,790
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	86,599
September	114,819	76,732	97,641	119,155	181,150	248,613	213,057	96,476
October	123,170	85,766	110,821	129,828	186,457	251,411	220,550	147,293
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	140,731
December	86,019	77,659	137,806	150,102	190,854	235,959	181,715	117,754

Totals 1,301,979 961,242 1,243,567 1,540,895 2,187,724 2,948,466 2,730,681 1,549,503

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. ...	102,600	154,118	175,463	101,804
Feb. ...	94,820	129,693	188,734	112,574
Mar. ...	134,785	157,469	164,865	68,549
April ...	133,900	178,502	174,162	111,812
May ...	217,467	194,482	191,860	125,659
June ...	118,296	180,122	241,069	188,647
July ...	200,845	185,677	272,017	141,838
Aug. ...	175,183	178,828	213,139	135,693
Sept. ...	184,456	180,571	295,424	109,176
Oct. ...	172,459	202,125	274,418	114,341
Nov. ...	128,019	163,017	179,727	90,222
Dec. ...	148,902	199,982	223,892	51,053

Totals ... 1,811,732 2,104,576 2,594,770 1,351,368

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,742	30,585
May..	42,569	23,347	15,949	28,728	28,169
June..	30,322	29,399	21,407	36,597	23,076
July ..	41,933	15,782	17,882	39,694	25,282
Aug..	36,879	10,944	20,571	18,740	28,768
Sept.	30,961	14,039	18,740	19,941	38,420
Oct..	31,455	21,035	25,559	20,840	22,754
Nov..	40,585	13,880	24,154	25,809	24,165
Dec..	31,575	19,665	21,234	26,454	9,493

Totals ... 487,973 256,903 225,072 317,260 290,394

IRON AND STEEL EXPORTS GROSS TONS.

	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Scrap	3,642	1,460	824	1,012	1,334	1,711
Pig iron	9,371	2,918	7,915	5,524	10,139	6,746
Billets, sheet bars, etc. ..	2,955	2,714	649	6,771	7,035	3,450
Wire rods	347	855	1,913	5,716	7,110	7,155
Rails	9,550	10,030	10,508	22,051	9,285	3,597
Steel bars	8,164	5,271	6,254	9,411	12,324	22,002
Iron bars	556	593	344	679	492	584
Structural	14,388	15,851	14,090	12,234	11,146	10,758
Hoops, etc.	846	413	456	1,104	1,499	706
Steel plates	7,172	7,184	5,722	9,958	10,508	6,810
Steel sheets	9,663	6,892	8,248	10,003	5,741	7,228
Galvanized sheets	3,103	2,179	3,242	2,740	4,440	3,091
Iron sheets and plates ..	823	628	488	547	358	203
Tin plates	8,213	5,296	4,726	5,950	4,937	3,377
Cast pipe and fittings ..	6,711	6,130	3,996	8,264	10,231	3,104
Wrought pipe and fittings	10,621	7,111	12,273	9,879	8,267	8,565
Barb wire	7,074	4,753	4,945	15,130	17,791	8,306
Other wire	6,142	3,012	4,294	10,490	10,437	12,475
Railroad spikes	813	796	382	477	321	168
Cut nails and spikes	335	132	102	177	58	158
Wire nails and spikes ..	2,474	1,133	2,079	5,927	4,895	3,830
Tacks, etc.	212	152	349	450	321	306
Bolts, nuts, rivets, washers	1,280	693	1,109	1,502	751	1,055
Horseshoes	82	40	1,309	905	1,263	1,687
Cast radiators	253	363	259	386	202	272
Totals	114,790	86,599	96,476	147,293	140,711	117,754

IRON AND STEEL IMPORTS, 1914.—Gross Tons.

	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Scrap	3,056	3,469	2,142	4,430	3,830	2,906
Ferrosilicon	623	1,113	355	650	251	304
All other pig iron	11,526	12,765	23,975	11,079	11,174	13,374
Blooms, etc., not alloyed ..	216	187	46	107	2	250
Blooms, etc., alloyed ..	1,394	3,459	3,078	2,693	2,788	1,592
Wire rods	406	171	150	316	918	79
Rails	1,236	2,070	7,342	1,299	2,339	251
Structural	671	1,909	396	346	1,212	94
Bar iron	3,001	1,615	609	1,208	790	1,153
Cotton ties	325	197	0	125	0	0
Sheets and plates	486	271	235	389	497	69
Tin plates	342	1,542	92	142	364	211
Total	25,282	28,768	38,420	22,754	24,167	24,417

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	\$17,994,381	\$34,426,801	\$17,826,973
2nd	20,457,596	41,210,813	25,102,265
3rd	22,276,002	38,450,400	30,063,512
4th	10,933,170	23,036,349	35,185,557
Year	71,661,149	137,133,363	108,178,307

	1911.	1910.	1909.
1st	\$23,519,203	\$37,616,876	\$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643

CAR BUYING

Freight cars ordered:

First half 1913	114,000
Second half 1913	33,000
Year 1913	147,000
January, 1914	10,000
February	13,000
March	8,000
April	10,000
May	10,000
June	15,000
July	7,000
August	3,100
September	95
October	1,725
November	550
December	1,150
Year, 1914	80,000
1915	
Jan. ..	21,138
February	4,255

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
	%	%	%	Tons.
March	93	77	-16	-187,758
April	93	51	-42	-490,194
May	95	41	-54	-654,440
June	93	47	-46	-517,005
July	90	55	-35	-407,961
August	90	75	-15	-175,888
September ..	82	74	-18	-219,683
October ...	87	74	-40	-490,018
November .	70	59	-11	-117,420
December ...	50	40	10	+114,239
January 1914	55	83	+28	+331,572
February ..	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	+ 5	+ 54,742
September ..	62	34	-38	-425,664
October ...	55	28	-27	-326,570
November .	45	32	-13	-136,505
December ...	38	82	+44	+512,051
January 1915	44	81	+37	+411,928

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct.	47,188	37,005	26,950	263,834
Nov.	49,666	16,181	30,942	240,617
Dec.	31,705	16,315	30,254	212,667
Year	90,405	435,440	435,497	3,977,468
1915—				
Jan.	21,138	24,411	29,216	230,204

* Includes scrap, pig iron, rolled iron and steel cast, and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

TIN.

TIN IN FEBRUARY.

The market opened in February at 38c a pound for Straits with further confirmation that the falling off in American consumption that had been a feature since the war began was still continuing, the American deliveries being only 2,300 tons in January or 1,200 tons below the corresponding month for the past five years. The London deliveries however, were large and the visible supply only showed an increase of some 500 tons, and with prospects of larger supplies from sources of production. While the London spot market held very strong, the price for futures declined sharply, and the spot market here in a few days declined to 36½c on February 4th. At this time a tight situation began to develop in London on account of the congestion at the London docks increasing, this congestion had existed for some time and prices there advanced sharply but without affecting our market. Spot tin being offered here at 2c a pound under cost to import from London, increasing to nearly 4c a pound under cost to import in a few days on a dull and unsatisfactory demand. About February 18th however, the risk of transportation caused by German submarines began to make an impression on both our buyers and sellers, and with further advances in London our market jumped to 39½c, bringing the price within ½c a pound of cost of import, but later declined to 48c at which the month closed.

The monthly statistics for February, published March 1st, showed the visible supply was about 3,000 tons larger than on December 1st. This visible supply, however, does not include the Banca tin being carried by the Dutch Government in Holland and Batavia, some 12,000 tons. Taking the sale of 2,000 tons which the Dutch Government made to Germany a short time ago, the stock in Holland amounts to about 2,000 tons. Besides this there is about 10,000 tons of Banca being held in Batavia for which steps are now being taken to find a market. Some 1,900 tons

of this Banca tin is now en route to Liverpool, and there have been several sales made for shipment to America direct from Batavia. These sales have been made at

about ¼c to ¾c a pound under the price of Straits for the equivalent delivery. While the brand has not been used in this country to any extent, a great many of our consumers would change to it at a saving in price. It is very doubtful, however, whether the tin plate mills will buy Banca unless there is a very much greater difference, because they claim that it is dangerous and liable to explode in the pots. The fact remains that the great bulk of the tin consumed on the Continent is Banca tin.

About March 3rd or 4th there developed a scare that dealers and importers would be unable to fill contracts they had made for March delivery, on account of the congestion at the London docks, and the fact that

TIN PRICES IN FEBRUARY.

Day	Cents	New York.		— London —	
		Prompts.		Futures.	
		£	s d	£	s d
1	38.00	175	0 0	162	0 0
2	38.00	174	0 0	161	10 0
3	37.12	173	0 0	156	0 0
4	36.62	171	0 0	152	0 0
5	37.50	176	0 0	152	10 0
6					
7					
8	37.12	176	0 0	155	0 0
9	36.12	173	10 0	153	0 0
10	35.87	174	0 0	154	0 0
11	36.50	177	0 0	154	5 0
12		174	0 0	153	0 0
13					
14					
15	36.50	178	0 0	155	0 0
16	36.37	178	0 0	156	10 0
17	36.25	176	0 0	154	0 0
18	37.00	178	0 0	156	10 0
19	37.50	184	0 0	161	0 0
20					
21					
22		186	0 0	164	0 0
23	37.00	180	0 0	159	0 0
24	37.87	177	0 0	157	0 0
25	38.00	178	0 0	157	10 0
26	38.50	180	0 0	158	0 0
27					
28					
Highest	38.50	186	0 0	164	0 0
Lowest	35.87	171	0 0	152	0 0
Average	37.27	174	18 0	156	8 0

TIN.

freights were not obtainable, and there was a sensational jump in price on March 2nd from 40.50c to 50c a pound on March 5th. In other words, we had the same kind of a situation as we had at the opening of the war when there was a similar scare about getting supplies. As we write however, the fright has subsided, and on March 9th the market was back with sellers at 45c and no buyers. The tin situation is an extremely interesting one and we call attention to the following analysis made by a prominent member of the trade.

L. Vogelstein & Company, New York, March 4th, analyze the tin situation as follows:

"In our last circular on the subject of tin written December 3rd when the price was £149 10s for spot in London and £147 10s for futures, and about 33c for all deliveries in New York, we showed, reviewing the situation after four months of war, that supplies had decreased 10,000 tons and deliveries 4,000 tons, with the result that the visible shrunk 3,000 tons instead of increasing a like quantity as was the case August-November 1913; and we added, 'There seems to be no other conclusion except that we shall have higher prices until the Straits production is stimulated, **unless the Dutch Government sells freely.**'

"Since that date prices have risen until they now stand at £182 London and 43c New York. Various elements may be cited to account for this rise the chief of which is uncertainty,—uncertainty as to supplies, transportation, insurance, financing, and every factor entering into the cost of production and distribution of the metal. The total rise since the war began has been £50 per ton in London and 10c per pound in New York. Admitting the justice of higher prices, so large an advance warrants examination. For that purpose we beg to submit the following figures:

	Visible Supply.	
	Metal Exchange	A. Strauss & Co.
July 31st, 1914	14,167 tons	16,661 tons
Feb. 28th, 1915	14,548 "	16,842 "
Increase ..	381 "	181 "

"The difference between the Metal Exchange figures and those of Strauss is chiefly due to the fact that the Metal Exchange takes no account of Continental supplies, stocks or deliveries. Making allowance for this difference and for minor errors and omissions common to both sets of figures, it is to be noted that the discrepancy is inconsiderable. After seven months of war there has been an increase of two or three hundred tons in the visible.

"A factor referred to above contributing to the rise, was that of transportation,—a lack of transportation facilities and a slowness of transport. How this has affected the situation is shown by details of the visible as reported by the Metal Exchange, July 31st and February 28th, as follows:

	July 31st, 1914.	Feb. 28th, 1915.
Stock	8,648 tons	4,039 tons
Afloat	5,519 "	10,509 "
Total	14,167 "	14,548 "

"In other words the stocks have been cut in half and the afloats multiplied by two; 3,000 tons of tin which should be available to consumption are tied up in transportation. We take it that this difficulty is at its maximum; and in any event without manipulation could hardly have widened the spread between spot and futures during the past two months,—from say £5 to nearly £25, with practically the same spot stocks on hand in London at both periods. We regard the situation in this respect as artificial and unsound. Any legitimate influence threatening the supply of tin and sending up the spot price, would have similarly affected copper, but the spread between spot and three months copper has remained practically unchanged.

Deliveries.

"For the seven months August to February inclusive deliveries have been as follows:

	1914-15.	1913-14.
United States ..	20,375 tons	23,200 tons
London	16,278 "	10,007 "
Holland	4,897 "	10,144 "
Continent	2,426 "	5,797 "
	43,976 "	49,148 "
Does show 5,000 tons less delivered		

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.

	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,214	13,901
Feb.	17,269	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	.....
April	14,441	11,893	9,822	15,447	.....
May	15,938	14,345	13,710	17,862	.....
June	16,665	12,920	11,101	16,927	.....
July	16,797	13,346	12,063	14,167	.....
Aug.	16,619	11,285	11,261	14,452	.....
Sept.	16,672	13,245	12,943	14,613	.....
Oct.	14,161	10,735	11,857	10,894	.....
Nov.	16,630	12,348	14,470	11,487	.....
Dec.	16,514	10,977	13,896	13,396	.....
Average	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,117	4,299	5,260	4,660	6,526	5,584
Mar.	3,877	4,510	5,150	4,810	4,120	.....
Apr.	4,025	5,110	4,290	4,400	4,930	.....
May	4,965	4,310	5,760	6,160	6,900	.....
June	4,120	5,050	4,290	4,820	5,870	.....
July	5,040	1,660	4,580	4,770	4,975	.....
Aug.	5,700	4,680	5,210	6,030	3,315	.....
Sept.	4,220	5,150	5,430	5,160	4,973	.....
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	64,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	.....
Apr.	4,025	4,100	3,300	5,400	3,450	.....
May	3,600	3,400	4,250	3,750	3,800	.....
June	5,000	2,900	2,850	3,800	3,650	.....
July	3,800	4,300	5,150	3,900	3,900	.....
Aug.	3,700	3,800	4,300	3,600	2,900	.....
Sept.	3,300	4,200	3,600	3,100	3,600	.....
Oct.	3,350	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Feb. 1915.	Jan. 1915.	Feb. 1914.
Straits shipments			
To Gr. Britain ..	1,254	2,985	1,261
" Continent ..	925	295	665
" U. S.	1,705	1,920	1,597
Total from Straits	3,884	5,200	3,523
Australian shipments			
To Gr. Britain ..	377	100	175
" U. S.	30	50	10
Total Australia	407	150	185
Consumption			
London deliveries ..	3,378	3,104	1,609
Holland deliveries ..	27	34	1,258
United States* ..	2,375	2,300	3,300
Total ..	6,780	5,438	6,167
Stocks at close of month			
In London			
Straits, Australian	1,721	3,308	3,473
Other kinds ..	272	775	1,868
In Holland ..	nil	nil	1,172
In United States*	2,046	1,771	1,554
Total ..	4,039	5,854	8,067
Straits all at, close of month			
To London ..	5,217	5,287	4,696
" U. S.* ..	3,365	5,160	4,362
Banca de Liverpool			
etc.	1,927	unknown	18
Total ..	10,509	8,447	9,241
	Feb. 28.	Jan. 31.	Feb. 28.
Total visible supply ..	1915.	1915.	1914.
	14,548	13,901	17,308

* Exclusive of Pacific ports.

TIN PRICES.

Average monthly price of Straits Tin in

	1911.	1912.	1913.	1914.	1915.
New York.					
Jan.	41.39	47.24	50.45	77.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.02
Mar.	40.76	42.86	46.88	8.08	.....
Apr.	42.20	44.02	49.12	36.10	.....
May	43.10	46.12	49.14	33.30	.....
June	46.16	47.77	44.93	30.65	.....
July	42.96	44.75	40.29	31.75	.....
Aug.	43.45	45.87	41.72	50.50	.....
Sep.	39.98	40.18	42.47	32.79	.....
Oct.	41.21	50.11	40.50	30.39	.....
Nov.	43.13	49.90	39.81	32.50	.....
Dec.	44.97	49.90	37.64	33.60	.....
Year	42.68	46.43	44.32	37.70	.....

TIN.

since the war than during the corresponding period a year ago. It will be noted that London is practically delivering for all of Europe including Germany and Austria. Normally Germany would have taken at least 10,000 tons during these seven months. She did take that much last year and only the balance of say 15,000 tons went to the other nations of Europe. It is safe to conclude that 15,000 tons is all that these other nations have taken this year and that the other 8,000 tons went to Germany, and this steady demand from Germany where prices have been very high has been the chief sustaining factor in London. Exclusive of Germany and Austria there is no possibility of European consumption since the war on the scale indicated by these figures. War occasions no increased usage of tin except, perhaps, in the shape of tin plate for various utensils, food containers, etc. In the munitions of war otherwise, tin plays no part, neither for the small arms nor large, and possibly for this reason England has raised no objection to exports destined for Germany.

"At any rate there is no escape from the conclusion that large quantities of tin have continued to go to Germany; in fact it is a matter of common knowledge. Whether the latest announced policy of the Allies to further restrict Germany's trade will have any effect on this traffic remains to be seen.

Supplies.

"Figures for seven months August-February inclusive:

	1914-15.	1913-14.
Straits shipments.	35,272 tons	38,730 tons
American shipments	677 "	2,025 "
Banca sales	5,940 "	7,500 "
Billiton sales	1,079 "	1,310 "
Standard U. K. and		
U. S.	3,211 "	5,344 "
Total	46,179 "	54,909 "

"It is apparent that compared to the 5,000 tons decreased deliveries shown above, supplies have shrunk about 9,000 tons, thereby holding the visible approximately level during the past seven months, instead of its increasing between 4,000 and 5,000 tons as was the case August to February inclusive

the year previous.

"The figures quoted herein both as to supplies and deliveries are those generally used in making up statistics, but there is a large production and consumption of tin which does not pass through statistics. To be exact, statistics deal with only 75 per cent of the total. The other 25 per cent, principally from Bolivia, frequently has an important market influence. The normal production of Bolivia is about 2,000 tons per month, which before the war was shipped approximately 1,200 tons to England and 800 tons to the Continent. Now it all goes to England and none to the Continent, but on account of the activities of the German fleet in South American waters last fall, arrivals in England, October, November and December averaged only a little over 500 tons per month, or less than half the usual quantity. This has made a great scarcity in England of the kind of tin usually produced from this ore, throwing the demand practically all on Straits. In January, however, arrivals from Bolivia at English ports, amounted to 2,513 tons fine tin and in February 2,881 tons. The enlarged production from this ore as soon as it reaches the market should make the situation easier, and with normal quantities coming forward monthly hereafter should materially relieve the strain under which the market has been recently laboring.

"It will be observed that after all a considerable quantity of Banca and Billiton tin has been made available to the market,—7,000 tons August to February inclusive against 8,800 tons same period last year,—but a considerable portion of this is still in transit; about 1,800 tons is due to arrive in London in March. In addition to this 1,800 tons there were 5,200 tons Straits afloat for London March 1st, (total 7,000 tons) against 3,200 tons afloat February 1st. This should relieve the scarcity at that center, and thereafter the Dutch Government, out of accumulated stocks and current production of Banca and Billiton, will sell until further notice 2,000 tons per month, 1,000 tons to be sold in Singapore and transhipped from there and 1,000 tons from Java to be shipped from Batavia. For the time being this will make about 500 tons per

TIN AND ANTIMONY.

month more than came on the market prior to the outbreak of hostilities. On this basis supplies will figure out about as follows: (statistical tin alone considered.)

	Tons per month.
Straits shipments	5,000
Banca and Billiton	2,000
Australian and Standard	600
	<hr/> 7,600
Against deliveries on basis past seven months (including at least 1,000 tons per month to Germany)	6,300
Same period last year (including 1,500 tons per month to Germany)	7,000

"Not an uncomfortably large surplus, perhaps, but a sufficiently safe margin to prevent actual scarcity if buyers are reasonably forehanded in anticipating their requirements.

Recapitulation.

"In favor of higher prices we have the higher costs, the various uncertainties referred to, the large quantity tied up in transportation, the great demand from Germany where a practical famine has prevailed; smaller sales of Banca and Billiton, and reduced output generally. Any amelioration of these conditions, such as freer transportation, the larger sales of Banca and Billiton now promised, possible stoppage of the shipments to Germany, greater output by English smelters from Bolivian ores, etc.; all of these things should work to at least check the advance if not actually to bring about lower prices. Were it not for the war we should anticipate a declining market, but while present abnormal conditions prevail predictions are extremely hazardous, not to say entirely futile, and we prefer to lay the facts and figures before our friends without comment, leaving them to draw their own conclusions.

"Specifically as regards the month of March, there is distinct promise of greater ease in London owing to the unprecedentedly large shipments now afloat to that port, and supplies generally will be on a liberal

scale, but here there is momentarily an undoubted shortage and relief can hardly reach us until later. Meanwhile there promises to be a period of acute scarcity in this market, with resultant high prices for spot tin."

THE ANTIMONY SITUATION.

The market in February opened at

19.50c for Cooksons

18.00c for Halletts

16.50c for Chinese and Japanese.

There has been a steady and rapid advance during the month and the market on February 28 closed at the following prices:

23.00c for Cooksons

21.25c for Halletts

18.50c for Chinese and Japanese

and since then a further rise of 2½c to 3c per pound has taken place in the first eight days of March. The market shows every certainty of going higher for which there are very good reasons.

In the case of all brands except Chinese and Japanese, on account of the embargo, no new supplies can be obtained from England, and stocks here are getting down to the vanishing point. Thus unless England allows the metal to be exported, there will be a situation where none of the English brands will be in existence here. England is using enormous quantities of war munitions and seems afraid to permit any supplies to pass from her control.

The Continent being cut off, our only supply is from China and Japan, and the enormous purchases by Russia from these countries has created a position where the sellers in China and Japan will have their hands full to carry out their contracts. They are offering nothing except occasional lots for March-April shipment from the East at 19c in bond, New York.

There is an excellent demand in this country to fill war munition orders into which the metal enters so largely, and on this demand and decreasing stocks it is no wonder prices are advancing rapidly. In the Russo-Japanese War the market reached 25c. It may easily go there or higher. Of course the end of the war would cause a cessation in the English embargo and war munition orders, and a collapse in prices would then certainly take place.

ANTIMONY — ALUMINUM

ANTIMONY PRICES IN FEBRUARY.

Day	Cooksons. Halletts. Hungarian.		
	Cts.	Cts.	Cts.
1	19.50	18.00	16.50
2	19.50	18.25	17.00
3	19.50	18.25	17.00
4	19.50	18.25	17.00
5	19.50	18.25	17.00
6			
7			
8	19.75	18.75	17.25
9	19.75	18.75	17.25
10	19.75	18.75	17.25
11	19.75	18.75	17.25
12			
13			
14			
15	20.50	19.25	17.75
16	20.50	19.25	17.75
17	20.50	19.25	17.75
18	20.75	19.50	18.00
19	21.00	20.00	18.50
20			
21			
22			
23	21.00	20.00	18.50
24	22.00	21.00	18.50
25	22.00	21.00	18.50
26	23.00	21.25	18.50
27			
28			
Highest	23.00	21.25	19.00
Lowest	19.00	17.50	16.25
Average	20.43	19.25	17.625

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.16	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	.....
Apr.	9.17	8.00	9.00	7.22	.....
May	9.18	8.00	8.77	7.29	.....
June	8.86	8.00	8.63	7.21	.....
July	8.56	8.26	8.47	7.11	.....
Aug.	8.44	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.34	7.52	14.26	.....
Dec.	7.83	10.66	7.45	15.82	.....
Av.	8.58	8.54	8.72	10.50	.....

ALUMINUM and SILVER PRICES IN FEBRUARY.

Day	Aluminum. — Silver —		
	New York. Cents.	New York. Cents.	London. Pence.
1	19.00	48 ⁵ / ₈	22 ⁵ / ₈
2	19.00	48 ⁵ / ₈	22 ⁵ / ₈
3	19.25	48	22 ¹ / ₂
4	19.25	48 ¹ / ₄	22 ⁵ / ₈
5	19.25	48 ¹ / ₄	22 ⁵ / ₈
6		48 ¹ / ₄	22 ⁵ / ₈
7			
8	19.25	48 ¹ / ₄	22 ³ / ₈
9	19.25	48 ⁵ / ₈	22 ¹ / ₂
10	19.25	48 ¹ / ₄	22 ⁵ / ₈
11	19.25	48 ⁵ / ₈	22 ¹ / ₂
12			22 ⁵ / ₈
13		48 ¹ / ₄	22 ¹ / ₂
14			
15	19.25	48 ⁵ / ₈	22 ³ / ₄
16	19.25	48 ⁵ / ₈	22 ³ / ₄
17	19.25	48 ⁵ / ₈	22 ⁷ / ₈
18	19.25	48 ⁵ / ₈	22 ¹ / ₂
19	19.25	48 ⁵ / ₈	22 ⁷ / ₈
20		48 ¹ / ₄	22 ⁷ / ₈
21			
22			22 ⁷ / ₈
23	19.25	48 ¹ / ₄	22 ¹ / ₂
24	19.12 ¹ / ₂	48 1-5	22 ⁷ / ₈
25	19.12 ¹ / ₂	48 ⁵ / ₈	22 ⁷ / ₈
26	19.12 ¹ / ₂	48 ⁷ / ₈	23
27		48 ⁵ / ₈	23 ¹ / ₂
28			
Highest	19.50	48 ⁵ / ₈	22 ¹ / ₂
Lowest	18.75	48	22 ¹ / ₂
Average	19.201	48.477	22.753

Average monthly price of Halletts antimony in New York

	1911.	1912.	1913.	1914.	1915.
Jan.	7.62 ¹ / ₂	7.61	9.18 ¹ / ₂	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	.....
Apr.	8.97	7.75	8.35	6.90	.....
May	9.01	7.75	8.23	6.80 ¹ / ₂	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77 ¹ / ₂	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75 ¹ / ₂	11.19	.....
Oct.	7.69	9.48	7.31	12.78 ¹ / ₂	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av.	8.16	8.19	8.07 ¹ / ₂	9.82	.....

COPPER.

THE COPPER SITUATION.

The copper market during February has been a record of more or less stagnant conditions. Aside from a good foreign demand and a fair demand from the brass trade caused principally by orders for material connected with war requirements, munitions, etc., all prices have remained unchanged throughout the month, $\frac{1}{8}$ c per pound covering the extreme fluctuation.

The market in February opened at

14.75 for lake

14.55 for electrolytic

14 $\frac{1}{4}$ for casting

all cash New York. The month closed at virtually the same prices.

The demand for home consumption has been disappointing, the wire and foundry business continuing very dull and in fact depressed. But the market has been kept steady in our opinion by four causes: First, the fact that producers were well sold on previous sales, which consumers have been taking on at lower prices than are at present ruling, and which for that reason have been put into their stocks where their manufacturing requirements have fallen short of actually requiring the metal. Second, that the consumption of copper by reason of war needs is very large with the Allies, giving us a good trade for export in spite of our being cut off from Germany. Third, that a very large amount of copper is held up by the Prize Courts, and for the present withdrawn from the market.

Fourth, because there being now no producers statistics, the American consumer has to guess at the production and consumption and increase of stocks in producers hands, thus not knowing fully what the effect of the war has been on consumption, the world over, has been content to accept the producers view that little if any increase in stocks has taken place.

It is known that American production has been substantially increased at the smelters in the past month, and will soon be felt in the refinery output, and we think it is a conservative view to state that unless in the next two months a substantial change for the better takes place in our home consumption, the price cannot be expected to improve, and in spite of the absence of statistics will be held at its present level.

COPPER PRICES IN FEBRUARY.

Day	New York		London	
	Lake.	Electro.	Casting.	Standard.
	Cents	Cents	Cents.	£ s d
1	14.75	14.55	14.25	64 12 6
2	14.87	14.65	14.37	65 17 6
3	14.87	14.60	14.31	63 0 0
4	14.87	14.55	14.12	62 2 6
5	14.75	14.55	14.12	62 7 6
6				
7				
8	14.62	14.55	14.12	62 15 0
9	14.62	14.55	14.12	62 10 0
10	14.62	14.55	14.12	62 17 6
11	14.62	14.55	14.12	62 5 0
12				63 2 6
13				
14				
15	14.62	14.55	14.12	63 2 6
16	14.75	14.60	14.15	63 12 0
17	14.75	14.60	14.15	63 7 6
18	14.75	14.60	14.15	63 10 0
19	14.75	14.60	14.15	63 12 0
20				
21				
22				63 7 6
23	14.75	14.60	14.15	63 12 0
24	14.68 $\frac{1}{2}$	14.55	14.15	63 15 0
25	14.68 $\frac{1}{2}$	14.55	14.15	63 10 0
26	14.68 $\frac{1}{2}$	14.55	14.25	63 10 0
27				
28				
Highest	15.00	14.70	14.50	64 12 6
Lowest	14.50	14.50	14.00	62 2 6
Average	14.756	14.522	14.17	63 9 10

WATERBURY COPPER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87 $\frac{1}{2}$	14.50	15.00	14.75	14.12 $\frac{1}{2}$
Feb.	12.75	14.50	15.50	15.12 $\frac{1}{2}$	15.25
Mar.	12.50	15.00	15.12 $\frac{1}{2}$	15.00	
Apr.	12.50	16.00	15.75	14.87 $\frac{1}{2}$	
May	12.37 $\frac{1}{2}$	16.37	15.87 $\frac{1}{2}$	14.75	
June	12.62 $\frac{1}{2}$	17.50	15.37 $\frac{1}{2}$	14.37 $\frac{1}{2}$	
July	12.75	17.75	14.75	14.12 $\frac{1}{2}$	
Aug.	12.75	17.75	15.62 $\frac{1}{2}$	13.00	
Sep.	12.62	17.87 $\frac{1}{2}$	16.87 $\frac{1}{2}$	12.87 $\frac{1}{2}$	
Oct.	12.50	17.75	16.87 $\frac{1}{2}$	12.25	
Nov.	12.87 $\frac{1}{2}$	17.75	16.25	12.25	
Dec.	13.87 $\frac{1}{2}$	17.75	15.00	13.50	
Av.	12.75	16.71	15.83	13.91	

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37	16.89	14.76 $\frac{1}{2}$	13.89
Feb.	12.75	14.38 $\frac{1}{2}$	15.37 $\frac{1}{2}$	14.98	14.726
Mar.	12.56	14.87	14.96	14.72	.....
Apr.	12.41	15.98	15.55	14.68	.....
May	12.32	16.27	15.73	14.44	.....
June	12.63	17.43	15.08	14.15	.....
July	12.72	17.37	14.77	13.73	.....
Aug.	12.70	17.61	15.79	12.68	.....
Sep.	12.57	17.69	16.72	12.44	.....
Oct.	12.47 $\frac{1}{2}$	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62 $\frac{1}{2}$	14.82	13.16	.....
Av.	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.25	16.75 $\frac{1}{2}$	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92 $\frac{1}{2}$	14.33 $\frac{1}{2}$	.....
Apr.	12.15 $\frac{1}{2}$	15.85	15.48	14.34	.....
May	12.13	16.16	15.63	14.13	.....
June	12.55	17.29	14.85	13.81	.....
July	12.62 $\frac{1}{2}$	17.35	14.57	13.49	.....
Aug.	12.57 $\frac{1}{2}$	17.60	15.68	12.41 $\frac{1}{2}$	.....
Sep.	12.39	17.67	16.55	12.09	.....
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50	14.47	12.93	.....
Av.	12.53	16.48	15.52	13.31 $\frac{1}{2}$	.....

CASTING COPPER PRICES.

Average monthly prices of **Casting Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27 $\frac{1}{2}$	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	.....
Apr.	12.07	15.72	15.33	14.18	.....
May	12.08	16.01	15.45 $\frac{1}{2}$	14.00	.....
June	12.40	17.08	14.72	13.65	.....
July	12.49 $\frac{1}{2}$	17.09	14.40	13.34	.....
Aug.	12.42	17.35	15.50	12.27	.....
Sep.	12.23	17.51	16.37 $\frac{1}{2}$	12.00	.....
Oct.	12.21	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56	17.34	14.22	12.83	.....
Av.	12.42	16.29	15.33	13.48	.....

SHEET COPPER PRICE CHANGES.

The base prices of sheet copper for the past year are given in following table together with the price of Lake copper on the same dates.

1914—	Sheet Copper.	Lake Copper.
January 1	20.25	15.37 $\frac{1}{2}$
February 2	20.00	15.12 $\frac{1}{2}$
March 13	19.75	14.50
May 13	19.50	14.43 $\frac{3}{4}$
May 22	19.25	14.43 $\frac{3}{4}$
June 15	19.00	14.18 $\frac{3}{4}$
July 27	18.50	13.43 $\frac{3}{4}$
August 18	18.00	12.56 $\frac{1}{4}$
September 1	17.50	12.62 $\frac{1}{2}$
October 1	17.00	12.12 $\frac{1}{2}$
October 22	16.50	11.50
November 19	17.00	12.25
November 23	17.50	12.62 $\frac{1}{2}$
December 1	18.00	12.90
December 15	18.50	13.50

1915—

January 16	18.75	13.75
January 21	19.00	14.12 $\frac{1}{2}$
January 25	19.50	14.37 $\frac{1}{2}$
January 29	19.75	14.62 $\frac{1}{2}$

COMPOSITE METAL PRICES.

Computation for March 1, 1915.

Pounds.	Metal.	Price.	Extension.
2 $\frac{1}{2}$	Spelter (St. Louis)	10.25	25.625
4	Lead (St. Louis)	3.82 $\frac{1}{2}$	15.300
3	Copper (Electro)	14.55	43.650
$\frac{1}{2}$	Tin (New York)	40.25	21.125
10 pounds			105.700
One pound			10.5700

Monthly averages

	1912.	1913.	1914.	1915.
January	9.778	10.987	9.105	8.836
February	9.677	10.260	9.294	9.878
March	9.886	10.024	9.026	.....
April	10.277	10.198	8.844	.....
May	10.468	10.163	8.668	.....
June	11.014	9.648	8.431	.....
July	11.043	9.398	8.345	.....
August	11.092	10.025	9.111	.....
September	11.575	10.350	8.067	.....
October	11.596	10.029	7.500	.....
November	11.372	9.590	7.873	.....
December	11.219	9.053	8.400	.....
Year	10.750	9.977	8.555	.....

SPELTER.

ent figure perhaps with some difficulty. This is of course taking for granted the war is to continue. In the event of peace or the certainty of an early end to the war, copper would certainly advance irrespective of surplus stocks, as an enormous demand might then be expected from Germany and Continental Europe, and speculation would certainly become dominant in the metal.

THE SPELTER SITUATION.

The months of January and February will long be remembered in the records of the trade, as a period in which there was a continuous almost daily advance in prices, and during which time values were doubled to the astonishment of the entire trade. Opening at 5.55c E. St. Louis in January, which by the way was almost 8c a pound above the average price of the past twenty years, the month had closed at about the highest price that the metal had been sold at during that period. But in February the advance was continued, the month closing at 9.75c E. St. Louis.

That there was a sound basis for a large advance is recognized, but no one doubts that it was exaggerated by skillful manipulation, as although 11c was reached early in March, in the past three days there has been a sudden change. Just when the trade against their best judgment, had at last been converted to the belief that all that had been claimed regarding conditions of supply and demand was true, and that there was a positive famine which promised to continue, the market suddenly began to weaken. The controlling interests close to the producers who have been unable for two weeks or more to offer any spelter for delivery this side of June, claiming to be sold up, suddenly became eager sellers at best possible prices for all deliveries, and as we write March 10th the market has become demoralized at around the following quotations:

9½ to 10c for spot,
9c to 9¼c for March,
8½c to 8¾c for April,
8¼c to 8½c for May,
8c to 8½c for June

with buyers completely scared, and there

is every indication of market declining further unless the foreign market comes in as heavy buyers.

The trade for galvanized iron and other commodities into which the metal enters has been greatly demoralized by the extraordinary advances, and now face a like demoralization in the other direction. The trade is now asking, "where have the supplies that seemed non-existent a few weeks ago come from?" The explanation we believe is that the cutting off of Continental supplies causing heavy purchases of American Spelter by England was exploited for all it was worth, and the failure of the U. S. Geological Survey to issue their usual statement of output, consumption and stocks on January 1st, increased the opportunity to frighten the American consumer,

SPELTER PRICES IN FEBRUARY.

	New York.	St. Louis.	London.
Day	Cts.	Cts.	£ s d
1	7.87½	7.70	36 15 0
2	8.06½	7.70	37 0 0
3	8.12	7.93¾	37 10 0
4	8.12½	7.93¾	38 0 0
5	8.25	8.00	38 10 0
6			
7			
8	8.25	8.00	38 10 0
9	8.25	8.00	39 10 0
10	8.40	8.20	39 15 0
11	8.62½	8.25	39 15 0
12			39 15 0
13			
14			
15	8.87½	8.62	39 15 0
16	9.12½	8.75	39 10 0
17	9.12½	8.87	39 17 6
18	9.25	9.12½	40 0 0
19	9.50	9.25	41 10 0
20			
21			
22			42 2 6
23	9.50	9.25	41 17 6
24	9.87½	9.62	42 2 6
25	10.12	9.87½	42 2 6
26	10.25	9.87½	42 10 0
27			
28			
Highest	10.25	10.00	42 10 0
Lowest	7.75	7.65	36 15 0
Average	8.866	8.61	39 16 6

SPELTER.

and enormous profits have been reaped at his expense. But a point had been reached when the advance if carried further would react on those who had largely been responsible for exaggerating the advance. The extraordinary profits had stimulated a heavy increase in ore production, and created ore prices that the smelting interests could not afford to pay. Also the consuming trade was being heavily curtailed and demoralized by the high prices. So the programme was changed and it remains to be seen if it will be carried out as successfully for a decline as it was for the advance. There is no doubt that there is no legitimate reason for recent prices being double that of two months ago, and a disgusted consuming trade will watch with interest the outcome and try to adjust their demoralized business as best they can to what the future has in store for them. We refer our readers to another article headed "Spelter—The Statistical Situation" given elsewhere in this issue.

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc since January 1, 1914 together with the price of spelter ruling on the same day:

1914—	Spelter Sheet Zinc, St. Louis.	
January 1	7.50	5.12½
January 22	7.25	5.12½
March 11	7.00	5.17½
August 11	7.25	5.25
August 18	7.50	5.65
August 21	7.50	5.80
August 31	8.50	5.90
October 14	8.60	4.60
December 3	8.25	5.37½
December 5	8.50	5.50
December 16	8.75	5.50
1915—		
January 12	9.00	5.90
January 19	9.25	6.10
January 21	9.50	6.75
January 26	10.00	7.31½
February 2	10.50	7.87
February 8	11.00	7.93½
February 8	11.50	8.00
February 12	12.00	8.25
February 19	12.50	9.25
March 1	13.00	10.25

SPELTER (Monthly Averages.)

	New York			St. Louis		
	1913	1914	1915	1913	1914	1915
Jan.	7.23	5.35	6.52	5.04	5.14	6.33
Feb.	6.49	5.46	8.86	6.25	5.27	8.61
Mar.	6.29	5.35		6.08	5.15	
Apr.	5.79	5.22		5.59	5.03	
May	5.51	5.16		5.31	4.96	
June	5.23	5.12		5.05	4.93	
July	5.41	5.03		5.23	4.84	
Aug.	5.89	5.63		5.64	5.45	
Sep.	5.83	5.52		5.65	5.33	
Oct.	5.47	4.99		5.27	4.81	
Nov.	5.34	5.15		5.15	4.97	
Dec.	5.22	5.67		5.03	5.49	
Av.	5.80	5.30		5.61	5.11½	

WATERBURY SPELTER AVERAGES.

	1911	1912	1913	1914	1915
Jan.	5.17	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.70	11.85
Mar.	6.01	7.17	6.56	5.59	
Apr.	5.85	7.07	6.08	5.50	
May	5.76	7.13	5.77	5.38	
June	5.89	7.25	5.50	5.37	
July	6.11	7.46	5.61	5.26	
Aug.	6.29	7.34	5.99	5.66	
Sep.	6.29	7.72	6.13	5.91	
Oct.	6.49	7.83	5.74	5.23	
Nov.	6.90	7.71	5.60	5.38	
Dec.	6.81	7.65	5.44	5.90	
Av.	6.16	7.33	6.06	5.53½	

ALUMINUM AND SILVER PRICES.

	New York					
	Aluminum—			Silver—		
	1913	1914	1915	1913	1914	1915
Jan.	26.31	18.86	19.01	62.93	57.56	48.89½
Feb.	26.20	18.80½	19.20	61.64	57.50½	48.48
Mar.	26.72	18.30		57.87	58.07	
Apr.	26.91	18.08		59.49	58.52	
May	25.95	17.93		60.36	58.18	
June	24.79	17.82		58.99	56.47	
July	24.74	17.50		58.72	54.68	
Aug.	22.75	20.38		59.29	54.34	
Sep.	22.00	19.28½		60.64	53.29	
Oct.	20.42	18.25		60.79	56.65	
Nov.	19.49	18.83		58.99	49.10	
Dec.	18.85	19.02		57.76	49.38	
Av.	23.03	18.50½		59.79½	54.81	

LEAD.

THE LEAD SITUATION.

The market has been quiet but firm during the entire month. Opening at 3.80c New York, the Trust price, this controlling interest advanced their price to 3.85c New York on February 16th, at which the month closed, but since then the Trust on March 5th, made a further advance to 3.90c New York. Demand has been good during the month, and the independent producers seem to have had no difficulty in getting right along 2½c per 100 lbs. over the Trust price, and future deliveries have found sellers shy at a premium of 5c to 7½c per 100 pounds over the spot market.

Like copper, there has been a substantial decrease in the American production of lead,

especially in the Southeastern and Couver d'Alene mines, while in the Missouri district the present rate of production is estimated at 70 per cent. of last summer. What the stocks are no one can tell, but it is believed they are not as large as a few months ago. There is a heavy foreign demand which probably more than offsets the falling off in domestic requirements.

Indications are for a firm and steady market with probable slightly higher prices before long.

LEAD PRICES IN FEBRUARY.

Day.	New York.*	St. Louis.	London.
	Cts.	Cts.	£ s d
1	3.80	3.65	18 15 0
2	3.80	3.65	18 12 6
3	3.82½	3.67½	18 13 9
4	3.82½	3.67½	18 13 9
5	3.82½	3.67	18 13 9
6	.....	.....	.....
7	.....	.....	.....
8	3.82½	3.67½	18 13 9
9	3.82½	3.67½	18 12 6
10	3.82½	3.67	18 13 9
11	3.82½	3.67½	18 16 3
12	.....	.....	18 17 6
13	.....	.....	.....
14	.....	.....	.....
15	3.82½	3.70	19 0 0
16	3.87½	3.75	19 1 3
17	3.87½	3.75	19 3 9
18	3.87½	3.76½	19 8 9
19	3.87½	3.76½	19 13 9
20	.....	.....	.....
21	.....	.....	.....
22	.....	.....	19 18 9
23	3.90	3.80	19 18 9
24	3.90	3.80	20 0 0
25	3.90	3.80	20 1 3
26	3.90	3.80	20 5 0
27	.....	.....	.....
28	.....	.....	.....
Highest	3.90	3.80	20 5 0
Lowest	3.80	3.62½	18 12 6
Average	3.85	3.719	19 3 8

* Outside.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	4.35	4.11	3.74	4.20	3.99½	3.57
Feb.	4.35	4.06	3.82	4.20	3.95	3.72
Mar.	4.35	3.97	.....	4.21	3.83	.....
Apr.	4.40	3.82	.....	4.25½	3.70	.....
May	4.56	3.90	.....	4.22	3.81	.....
June	4.35	3.90	.....	4.21	3.80	.....
July	4.37	3.90	.....	4.25	3.75	.....
Aug.	4.63	3.90	.....	4.56	3.73½	.....
Sep.	4.75	3.86	.....	4.62	3.67	.....
Oct.	4.45	3.54	.....	4.31	3.39	.....
Nov.	4.34	3.68	.....	4.18	3.58	.....
Dec.	4.06	3.80	.....	3.94	3.67	.....
Average	4.40	3.87	.....	4.26	3.74	.....

* Trust price.

HUNGARIAN ANTIMONY.

Average monthly price of Hungarian antimony (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	15.62
Mar.	8.75	6.78	7.91	5.94½	.....
Apr.	8.34	6.87	7.82	5.82	.....
May	8.06	6.98	7.75	5.78	.....
June	7.38	7.07	7.62	5.62½	.....
July	7.32	7.37	7.55	5.44	.....
Aug.	7.22	7.58	7.48	13.05	.....
Sep.	7.13	8.00	7.51	9.79	.....
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Average	7.48	7.65	7.43	8.77	.....

REVIEW OF THE JOPLIN ORE MARKETS.

The month of February recorded the highest prices ever paid for zinc ore in the Joplin district. With the unusual demand for zinc blende ore prevailing throughout the month causing a very decided increase in the tonnage sold. This increase is due partly to the sale of surplus ore and partly to the increased production brought about by the tremendous advance in the value of this ore. The price for zinc ore rose by leaps and bounds throughout the month. Starting at the first of the month with a base range of \$58 to \$65 the market closed at the end of the month with a base range of \$69 to \$75, an increase of \$10 per ton for the month. The highest price recorded as being paid was \$78, this high price eclipses all previous high record prices ever paid for zinc blende ore, being \$11 higher than the highest price paid for zinc ore in 1912.

The total tonnage sold for the month was 23,332 tons or an average tonnage by weeks of 5,833 tons, recording an increase in the average tonnage sold per week of 1,576 tons over that sold the previous month. The average price by weeks being \$64.80 per ton, showing an increase of \$15.37 over the average price the previous month. The market for zinc blende ore closed at the end of the month decidedly stronger than that recorded the first of the month, the smelters being willing to take all the ore that they could procure and even in face of the high prices there seemed still to be an unsatisfied demand, with all the buyers in the field trying to secure such surplus ore as could be bought.

The Calamine ore market for the month was equally strong, following the advance in price of blende ore raising from an average price of \$28.08 to an average price of \$35.98. The highest base price paid for the month was \$47 per ton. Calamine ore sold on a general base range throughout the month from \$28 to \$47. The total production of this ore for the year is 2,741 tons, production for the month being 1,588 tons or an average production by weeks of 397 tons. With the continued adverse weather conditions prevailing the production of calamine ore has not increased to the tonnage that is easily available with the proper

weather conditions prevailing.

In the lead ore market very little change was recorded throughout the month, the market being rather dull and inactive at the beginning of the month and although showing no increase in price the demand at the last of the month was considerably stronger. Lead ore sold generally at a base price of \$47 per ton, with a few lots selling as high as \$48 per ton. The production for the month being 2,487 tons with an average weekly production of 719 tons selling at an average price for the month of \$46.59 per ton. The total lead ore production for the year being 5,857 tons with the production for the month showing a decrease of 89 tons under the production of the previous month. With the unusual incentive offered for the production of zinc ore the producers in the Joplin district are showing every disposition to do all that is possible to satisfy the demand. It is notable however that the increased sales this month do not record the actual production for the month, but represent the sales of a portion of the surplus ore held in the district.

The slowness with which the production is increased is undoubtedly due to the large number of mines that were shut down during the dull period in the zinc ore market covering the last half of 1914. Although a great many of these mines are being opened up preparatory to mining it takes considerable time to put a mine in the producing columns and the production should not reasonably be expected to increase very materially inside of the next thirty to sixty days.

The estimated surplus stocks of zinc ore remaining in the bins of the producers at present is 9,785 tons with the estimated surplus of lead remaining in the bins being 1,030 tons, showing an increase of 330 tons of lead over the surplus of the previous month. As lead ore is made largely as a byproduct from the production of zinc ore and as all the operators are rushing the production of zinc ore there is naturally an increased production of lead ore, but the producers being unwilling to sell their lead as low as \$47 per ton it is natural that the surplus stock of this ore should increase.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, APRIL, 1915.

NO. 4.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,

C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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THE BUSINESS SITUATION.

Usually one who sets out to review business conditions and map out the business prospects has the plain course before him, first to ascertain accurately the existing conditions and the movements that have brought them about, and second to draw upon the history of past business movements to determine how the existing conditions are likely to work out in future trade movements.

So clearly has the course of business in the past defined certain rules that it will follow in various circumstances that the element of uncertainty in the whole operation of summing up conditions and forecasting prospects rests chiefly in the first operation and not in the second. If an error is made it is likely to be not in the reasoning, but in the facts. With adequate information as to what has occurred, and as to the existing conditions, the man who has had skill enough to gather this information is not at all likely to err in his conclusions. Errors are often made but they can be traced much more frequently to misapprehension of facts than to misapplication of principles.

To-day the work of review and forecast is altogether different. The facts are very much better known than usual. A hundred men know what was our trade balance last January to one

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who had the corresponding information a year ago, and so it is with all important business information at this time. When, however, one seeks to draw from these facts conclusions as to the future he is beset with unfamiliar difficulties, for precedents and parallels are largely lacking. We do not know what men will do, as a result of these physical conditions, from observing what they did in the past with such physical conditions, because at no time in the past were such conditions presented.

What occurs at one time or another, however, is the resultant of various forces operating in men's minds and when we cannot find in history any parallel to present conditions we must seek, from knowledge of the working of men's minds, the probabilities as to what they will do in these unprecedented conditions. The chances of error are greatly increased, but the demand for any views that may help to throw light upon the future has increased still more, so that the game should be well worth the powder.

As has been said, the business condition is well understood. The foreign trade of the United States (shown in full detail elsewhere in this issue) has indicated favorable merchandise balances of \$79,000,000 in November, \$131,000,000 in December, \$146,000,000 in January and \$174,000,000 in February, and the total for five months through March is certain to exceed \$600,000,000. The fear of gold exports, to pay for securities returned, has been removed. There has been a very considerable increase in wage disbursements and the farmers have received a great deal of money.

The facts as to business activity,

indicated by various showings but illustrated most succinctly by the experience of the steel trade—an unusually accurate and trustworthy guide in this instance—is that the common everyday activities of the people have very considerably increased in the past few months and are now really not far from normal, while in the sharpest contrast is the condition that hardly any new construction work of consequence is in process, or even in prospect.

Although we have no precedents, anyone can understand this situation. Material things from day to day are forcing a certain amount of daily activity, but no one is doing anything for the future. The railroads are not preparing for an increase in the freight or passenger movement, men are not building hotels and office buildings against further expansion in trade, and factories are not being built to make new products or increase the output of familiar products.

We mentioned the steel trade. Mark how clearly it proves that this is the condition: The tin plate industry is operating at practically full capacity and expects record production this year. Wire mill operations have been almost if not quite normal. Standard steel pipe and boiler tubes have shown demand but little short of normal. These products enter into the daily life of the people, in one way or another, but of possibly even wider distribution is the merchant steel bar, and the bar demand has been strikingly greater than the demand for structural shapes or plates. These last named products, together with oil country goods, have been and are in extremely light demand, simply because construction

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work is practically at a standstill, while the common everyday activities of the people are almost normal. As to the railroads, less than 10% of the steel being shipped is for railroad consumption, while in the past normal railroad demand has been above 20% and in exceptional years has reached 40% or more.

Clearly the material things are forcing men to do what they must do from day to day, but there is no looking ahead, no planning for the future. That is because of the war, the overmastering influence that will mold the course of trade for the next quarter century—but how? We have no precedent and can only ask ourselves how the war will affect men's minds. But have we no precedents at all? Are not nations merely great communities? What became of Chicago after the great fire, of San Francisco after the earthquake? Stunned for a moment by a great disaster, men quickly resolve to work and economize. Opinions lately formed as to how long it will take to pay the cost of the war will have to be revised. The warring nations have already started to cut down their use of intoxicating liquors. Figures given on good authority, and presumably fairly accurate, indicate that before the war the United Kingdom was spending more than twice as much on drink as on its army and navy. Drink is but one of many things in which economy can be practiced. Besides economizing men can work much harder and more efficiently. A decade after the Franco-Prussian war the victorious nation, in receipt of an enormous indemnity, was surprised to find the conquered nation much more prosperous than itself—and woke up! The war bill will not be so difficult to pay as has been thought. Men's minds will change on this subject.

By the great majority of men this war was unexpected. They were stunned, swept from their moorings and had no thought where to turn. They have dwelt upon the terrible losses, and as the real fighting season approaches they cannot at the moment think less on this subject. But the time will come when the minds of men will begin recovering from the shock, when they will begin again to look forward, and what they will look forward to will not be protracted misery, suffering, starvation and idleness, but work, economy, reconstruction, recovery—and peace!

By most men, we said, the war was unexpected, that is, the balance of probabilities seemed against it. But for years we all know the war cloud hung over Europe and time and again it was said plainly by the highest authorities that trade would be much better, initiative would be more free and men's plans for the future would be broader and more comprehensive were it not for that cloud, darker at one time and less dark at another, but always present, and never except perhaps in the minds of one nation that shall be nameless, with any silver lining.

That cloud is removed for a generation—let us pray for all generations—and by this much trade must eventually be better than it was before.

We have written to no purpose if we have not aroused, or increased, hopes that day by day as the world approaches the end of this terrible war men's minds will begin to look forward more and more, to plan how they will work and economize, and how they will build for the future, to mend the ravages of the war and to profit during a long peace by the greater fruits that industry will yield when expenditures for war preparation, for luxuries and

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for extravagances will be so greatly reduced.

When will this change in men's minds come? We do not know. At the threshold of the summer campaign the time is probably not propitious, and yet by as much as men's minds have been depressed by the terrible calamity by so much may the rebound to hope and faith be quickened.

Of this much, it seems, one may feel reasonably certain, that the improvement in business that has occurred, being produced by material conditions that are not likely to be altered, will be held, that there will be no backsets, and that the next change in trade conditions as a whole will be a further and more marked improvement.

AFTER THE WAR; WHAT?

In trade circles two things are commonly being predicted, that towards or at the close of the war there will be a great business revival, and that eventually there will be a depression when "the world will pay for the cost of the war."

We think there is a disposition in many quarters to overestimate the misfortunes that will attend payment of the war bill. In essence prosperity is work. If there is work there is prosperity. There may be work to be done without means existing for its being done. Improvements may be needed, but capital may be timid. If there is work to be done and capital is not timid, if the job and the man can connect, the work is done and there is prosperity.

There is no large destruction of capital by this war, except as material things are destroyed, and those material things must be replaced, making work if the job and the man can be connected. To connect the man and the job the main thing needed is confidence. No one but can remember that for years all discussions of the future of world business have contained a note of caution that the war cloud was ever over Europe. The war may not have been expected everywhere, but everywhere it was feared. Necessarily it will serve one purpose at least to remove those fears, and with those fears removed productive enterprise will flourish.

The war bill must be paid, but it will not be paid by idleness. It will be paid by hard work with economy, but the economy will not be abstention from necessities, but from luxuries. The economy will not mean that men will not build for the future, that they will refrain from enterprises promiss-

ing gain. The war expenditures are enormous, but the wastes and luxuries of the world are still more enormous.

With the danger of a European war removed there will be room for countless enterprises upon which men have hitherto feared to embark. When the war broke out it was thought witty in some quarters to remark that it settled the long discussed project of a tunnel under the English Channel. The inference was the question was settled in the negative, but was it? Where are the dreams of an assured European peace if the menace to England of the tunnel is not removed? It is well to recall that in the months immediately preceding this war the old channel project was being discussed with renewed interest, and views were expressed in some quarters that the ancient prohibition of the English government stood strong chances of being removed, because of, among other things, the growing friendship between England and France. In the last week in May, before the war, the question was put as to the attitude of the British military authorities, and the government's reply was that the opinion would be made public shortly. So far as we recall the promised expression was never given but there are some reasonable grounds for expecting a favorable opinion in the changed conditions that are now promised. The tunnel is scarcely an engineering feat at all, and the estimated cost a year or so ago was only £16,000,000 sterling, say \$75,000,000, with benefits scarcely to be calculated. If such a promising project can be released by the war, who can say but that there are scores of others.

BUSINESS TRENDS.

STOCK MARKET'S ADVANCE.

A transition from dullness and despondency to relative activity and buoyancy occurred in the stock market during the week commencing March 22nd, and continued to the end of the month. Bradstreet's in discussing the situation, said in part as follows: "In the place of the limited dealing which had been witnessed at the New York Stock Exchange for some time past, with daily totals of sales at that institution barely exceeding 200,000 shares, several days of the present week have brought aggregate recorded transactions of some 600,000 shares. The volume of business was the largest since the reopening of the New York Exchange in December.

"A variety of causes contributed to bring about the marked change in the action and attitude of Wall Street. Renewed hopes that the foreign war may come to an early end again figured in current discussion of the outlook. The most important and effective factors were undoubtedly the striking proofs which have been presented of the strength of this country's financial and commercial position."

INCREASED NUMBER OF NEW INCORPORATIONS

During the month of March there were more incorporations than in any other month this year. Papers filed in the Eastern States for companies with a capital of \$1,000,000 or over, for example, represented a total of \$70,050,000. This is an increase of \$16,100,000 over the previous month and \$12,350,000 as compared with March a year ago. The grand total of all companies incorporated with a capital of \$100,000 or over, covering all States, including those of the East, amounted to \$130,303,500, against \$93,720,500. But the figures a year ago were \$131,737,000.

Following are the comparative figures as compiled by the "Journal of Commerce and Commercial Bulletin" of companies incorporated in the Eastern States during the last three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan..	\$51,150,000	\$120,050,000	\$332,450,000
Feb..	53,950,000	51,575,000	191,500,000
Mar..	70,050,000	57,700,000	166,030,000

HEAVY INCREASE IN FAILURES DURING FIRST QUARTER OF 1915.

The total number of failures for the first quarter of the year was 6,124, a total never heretofore equaled in any three months in the country's history, exceeding the total for the first quarter of last year by 1,929, or 45 per cent.

More than half of the total increase in number of failures, as compared with the first quarter of 1914, is furnished by the South, which has actually provided over one-third of the entire country's failures. Southern failures, in fact, have nearly doubled in number, while the increases in the other sections vary from 19 per cent. in the middle states to 41 per cent. in the western group.

In the following table will be found the failures for the first quarter of 1915:

	No. of failures	Assets	Liabilities
1915.			
January	2,378	\$35,428,030	\$50,576,581
February ...	1,865	13,663,744	24,943,644
March	1,881	16,463,432	29,896,857
First quarter	6,124	65,555,206	105,417,082

LARGE PIG IRON PRODUCTION.

	1912.	1913.	1914.	1915.
January	66,384	90,172	60,808	51,659
February ...	72,442	92,369	67,453	59,813
March	77,591	89,147	75,738	66,575
April	79,181	91,759	75,665	
May	81,051	91,039	67,506	
June	81,358	87,619	63,916	
July	77,738	82,601	63,150	
August ..	81,046	82,057	64,363	
September ..	82,128	83,531	62,753	.....
October	86,722	82,133	57,316	
November ..	87,697	74,453	50,611	
December ..	89,766	63,987	48,896	

FEBRUARY EXPORTS VERY LARGE.

	1915.	1914.
Exports	298,727,757	173,920,145
Imports	125,123,391	148,044,776
Excess of exports	173,604,366	25,875,369
Seven months ended Feb. 28th.		
	1914-1915.	1913-1914.
Exports	1,180,521,201	1,534,731,903
Imports	771,051,945	1,076,735,504
Excess of exports	409,469,256	457,996,399

THE EFFECT OF EIGHT MONTHS OF WAR UPON METALS.

Accompanying this article we present a chart showing the daily fluctuations in the price of copper, tin, lead and spelter beginning with the month preceding the outbreak of the war, up to April 1, 1915, a period of nine months, the most momentous period the metal trade has ever experienced. Under any circumstances it would be an interesting presentation, but we think it is still more so since it shows the **daily movements and fluctuations** during that period, something we think has never been attempted before. While charts of price fluctuations are common, and we have issued them ourselves in the past, they invariably represented the average monthly or weekly movement, or the high and low points. It is possible in our present chart to see at a glance not only what the movement has been, but also to locate exactly the prices on each business day during the period in question.

The effect of the greatest war on record, involving with the exception of the United States the principal producers and consumers of these metals, the countries in whose hands has been the ocean transportation of international commerce, and the financing of these commodities, will long be the study of economists in the future. It was a situation that the wildest imagination could not conjure up as possible, but since the impossible has taken place, it is of absorbing interest to trace what happened, and when, and to analyze the reasons why.

To a great extent readers of THE STEEL AND METAL DIGEST from month to month, have been in part prepared for what has occurred. Only in a few instances has the unexpected happened, and even in those cases it has been a more rapid development and response to conditions than was expected, rather than the movement itself. The facts that stand out most prominently are as follows:

- 1st—That war is an enormous consumer of non-ferrous metals.
- 2nd—That while the financial chaos and unsettlement at first had the effect of temporarily paralyzing production, it has not interfered with the increasing requirements.

3rd—That a control of the sea by one of the belligerents has enabled international commerce in a large way to continue undisturbed for neutrals and their own commerce. Had Germany and England been evenly matched in this particular, our chart would have shown a very different story.

4th—That war after the first shock, stimulates mercantile energies and activities and ingenuity, mental as well as physical. War also stimulates speculation.

COPPER.—We have said our readers were prepared in the case of copper to expect a decline in price through the shutting off of our largest customer, Germany, and the breaking down of finances and foreign exchange. It was quite natural that the market should have been steadied when our producers either from necessity or foresight immediately cut down the production one half to meet the situation. It was to be expected that with these conditions in force the market should have taken care of itself and gradually gained in strength and in price, and also to advance sharply when the end of the war began to come into sight. What could hardly be expected so soon, however, has taken place, namely with no end of the war actually in sight, and with Germany still more completely cut off than ever, copper started to advance early in November. In the face of production rapidly being restored to normal, the price of copper advanced in the past five months 43½¢ a pound to 23½¢ per pound higher than the average for the month preceding the outbreak of war, and still showing every indication of going higher. This advance has been brought about not from any recovery of our home consumption or from the ordinary requirements of peaceful pursuits, but from the demands of war munitions, a demand that cares little for the price it pays, the obtaining of the commodity being the main factor. Also from the speculation excited by the war demand and the resulting advance, the speculation taking the form of anticipating peace, and the rush of demand that is then to be expected for normal requirements that have been held up by the war. This war demand

must continue while the contest is continued. Copper is not likely to recede under it, while if the price in the meantime has not advanced too extravagantly, the price of copper is not likely to decline with peace declared, even with the largest output we can produce. What the price and situation will be a year after peace, we do not care to predict.

TIN.—On account of America being the largest consumer of this metal and producing none, it was natural that the wildest excitement should have followed the outbreak of war. We had no stocks to fall back on, and no substitute for the uses to which the metal is put. Dependent on almost weekly arrivals by long ocean voyage, it was a very open question at first if England could protect her shipping sufficiently to continue our supply, while if she found her own supply endangered, it was in her power to place at any time an embargo on all exports of the metal both from England and the sources of supply in the East that she controls. No wonder a scare took place, and in less than a week almost doubled the New York spot price of tin. When it was proved these fears were groundless it was natural the extravagant prices thereby caused should have disappeared. What was not to be expected was that in March, eight months after the outbreak of war, with the seas free, and production in the East Indies restored from the financial crash that marked the opening of hostilities, a congestion at the London docks should have taken place that threatened to cut off shipments to America. Consequently the price of tin advanced here almost 25 cents per pound above the price touched in October, and with almost as much excitement as during the opening days of last August, and the realization that the metal was reaching her enemies through neutral countries has forced England to declare an embargo on all shipments except under special license.

We consider the tin situation presents a certainty of a return to normal transportation facilities. While it is necessary to obtain licenses to ship tin to America the licenses will be freely issued, hence we will obtain all of the metal we need since the supply and production abroad is ample. Therefore the present high prices are certain to rapidly disappear. Neither do we see in the future anything that is likely to excite a repetition of the excited and sensational

advances of the past. Tin is not used in any great extent in war munitions, and there is less than the normal consumption to be expected while the war lasts. But with new and unexpected developments likely to come up during the war, predictions are useless.

SPELTER.—It is quite natural with the war raging in that small portion of Europe, Belgium, and the western border of Germany, where nearly all the European spelter smelters are situated, that the financial effects of war should have been overcome by the prospect that in a few months America would be called on to supply Europe with a large portion of this metal. But it was hardly to be expected, that with this certainty before us, our market from the failure of this demand to materialize, should have for four months thereafter experienced a dulness with prices but little better than for the month preceding the war on the stagnant condition of home consumption and the fear that as the production had been running fuller than ever and that stocks were very large explains this. But a great surprise was in store and it came with the first weeks of January.

The government figures of production, consumption and stocks which are usually issued at the beginning and the middle of each year, and on which the trade depends for its information as to the statistical position, were very strangely not issued, and instead, a trade paper, issued statistics which they claimed to be the result of reports received from nearly all the producers, showing the production had been as anticipated, very large, but that the stocks were on January 1 only about 2,500 tons, or less than half of what was generally expected. The result of these statistics was a rapid advance, and within the next two months prices almost doubled, accompanied by enormous buying and export. There has since been a reaction of about 10 per cent from the sensational prices of December. Last St. Louis for spot settled in or early March. As we get access to government statistics we have issued and will give them as soon as they are given.

There is good reason for believing manipulation has played a part in this sensational movement, and that it will be a long time before spelter will come still at the present early March. While the spelter demand is certain to increase this year

the higher grades of spelter used for ammunition are certain to be very scarce, still, unless there is a great improvement in the American home consumption, stocks are sure to increase. With large stocks lower prices are likely to rule. The enormous profits of the ore producers and smelters that present prices afford, insures an enormous production.

LEAD.—The movement in this metal has been very surprising. For two months after the war broke out there was no change whatever in the price, and the basis ruling the month before, in fact during October and early November even a slightly lower basis was reached. Since then there has been a slight recovery and this has put

the market a little over 35c per pound higher than it was before the war commenced. It is significant the small recovery was in the face of very large export demand during the past two months. The explanation is that lead does not enter as much into war munition as people generally imagine, also that the production abroad has not been interfered with to the extent of the production of spelter and some of the other metals. Lead enters very largely into large industrial enterprises which have been severely held up by financial conditions created by the war. The statistical position is a big item but there are no lead statistics available, thus the prospects point to a strong, steady market and higher prices.

RELATIVE COSTS OF BLACK AND GALVANIZED SHEETS.

The high cost of spelter forcing the sheet mills to advance their prices on galvanized sheets by about \$15 a ton while making no advance in black sheets, has totally disarranged the usual relations, as to adaptability, in these two commodities. All views have to be revised. With the spreads that have hitherto obtained between black and galvanized sheets users have definite conclusions as to which is the more desirable product for given uses, but these conclusions must now be largely modified, because a much heavier gauge of black sheet than formerly sells at the equivalent price of a given gauge of galvanized. There is, of course, in nearly all instances a point where it does not pay to use the galvanized product, for as a rule added thickness of steel gives greater durability, just as does the spelter coating.

The important part played by stiffness in the sheet is often lost sight of. Why does a 24 gauge galvanized sheet last much longer than a 28 gauge galvanized sheet? It is not the coating itself that makes the great difference, for the thickness of coating is approximately the same, being only slightly greater in the heavier gauge, and of course the coating is not studied so meticulously in 24 than in 28 gauge. The chief cause of the difference is the greater stiffness of the base steel offering greater resistance to abrasion from wind or the operation of machinery, etc. Such greater resistance is furnished in the case of the

heavier steel when it is painted as well as when it is galvanized.

There has been considerable inquiry into relative costs of black or painted and galvanized sheets and we have therefore compiled a couple of tables, given herewith which present practically the whole subject. Computations are necessary, of course, because sheets are used according to area, and the unit of comparison is therefore a given area.

Our first table, referring to flat sheets, takes as its basis the cost per square foot. In the left half of the table there are set down in order the galvanized sheet gauges, with the weights in ounces per square foot and the costs per square foot, figured on a mill quotation of 3.40c basis for 28 gauge, with the standard differentials that are published regularly in our columns. In the right half of the table are set down the black sheet gauges which approximate most closely to the respective galvanized sheet costs, the costs per square foot based on a mill quotation of 1.80c basis, weights per square foot and gauge numbers being given.

Our second table, referring to corrugated sheets, takes as its basis the cost per square of 100 square feet, 2½-inch corrugations, the computation of cost being based upon the accepted trade weights per square of painted and galvanized, and using the regular extras per pound above the pound prices for flat sheets. For galvanized sheets the extra is uniformly 5c per 100 pounds, for

corrugating, for painted the extras are 5c per 100 pounds for corrugating, plus 5c per 100 pounds for painting 12 to 18 gauges, 10c for 19 to 24 gauges and 15c for 25 to 28 gauges.

Comparing flat sheets, it will be seen that one can purchase 24 oz. black at a shade less price than 10½ oz. galvanized, the buyer thus securing considerably more than double weight by buying black; while 28 oz. black and 14½ oz. galvanized are at the same cost, giving almost double weight in the black. In very heavy materials, 45 oz. black and 26½ oz. galvanized correspond.

Comparing corrugated roofing, 28 gauge galvanized figures out \$2.93 per square, and one would have to buy as heavy as 20 gauge painted, weighing almost twice as much per square, in order to spend approximately as much money on the painted as the galvanized would cost. This makes such an extreme comparison, as 28 gauge galvanized is not much account anyhow for roofing or siding, on account of its flimsiness when exposed to wind, that we carry the

painted comparison back to 24 gauge, showing that 24 gauge, 110 pounds, costs 22 per cent less than 28 gauge galvanized, weighing only 85 pounds.

Those who want the best results in permanent structures, should use 22 gauge galvanized for siding and 20 gauge galvanized for roofing. The 22 gauge galvanized now costs \$4.53 per square, while at \$4.47 per square one can get 16 gauge painted, weighing 80 per cent more, or one can select, preferably, 20 gauge painted, weighing 8 per cent more and costing 27 per cent less.

Whether the basis material for roofing and siding is black sheets or galvanized sheets, it must be kept painted to secure the best results. There is really little distinction, though the average user feels no doubt that the black requires more careful attention than the galvanized. With the great saving to be effected in first cost by using painted instead of galvanized material one can readily afford to be very particular about the painting.

Black and Galvanized Sheets.

Price comparisons based on standard mill quotations, 1.80c for black, 3.40c for galvanized, with recognized standard extras and differentials.

Flat Sheets.

Galvanized			Black		
Gauge number.	Weight, oz. per sq. ft.	Cost per sq. ft.	Cost per sq. ft.	Weight oz. per sq. ft.	Gauge number.
30	10½	2.43	2.40	24	20
29	11½	2.55	"	"	"
28	12½	2.66	"	"	"
26	14	2.81	2.80	28	19
24	16½	3.41	3.20	32	18
22	22½	4.15	3.88	40	16
20	26½	4.64	4.36	45	15

Corrugated Roofing.

Galvanized			Painted		
Gauge number.	Weight, lbs. per square.	Cost per square.	Cost per square.	Weight, lbs. per square.	Gauge number.
..	..	..	1.98	110	24
..	..	..	2.45	136	22
28	85	2.93	2.85	160	20
27	91	3.00	"	"	"
26	98	3.09	"	"	"
24	124	3.72	3.64	217	18
22	151	4.54	4.47	271	16
20	178	5.07	"	"	"

DUMPING 60,000 TONS OF CANADIAN RAILS.

C. W. Barron, owner of the Wall Street Journal, the Boston News Bureau and the Philadelphia News Bureau, one of the keenest newsgatherers in the world and a man who sees things as they are, made some months ago a searching inquiry into the circumstances of the great European war and stated as one of the chief causes of the war the use Germany had made of her "scientific tariffs", measures by which the precise things that Germany needed for further industrial expansion were allowed to come in and the things whose importation would be detrimental were kept out. Germany did not use high tariffs to give hothouse culture to her industries nor low tariffs to curb her trusts, for she fostered those trusts and made them a benefit to the country. The wretched comparison between Germany's scientific tariffs and the miserable hodge podge the United States is laboring under is an unmitigated disgrace.

What is there scientific in the United States tariff? By their fruits ye shall know them. The Algoma Steel Company, at the Canadian Soo, in January and February, sold 25,000 tons of rails in relatively small lots to our railroads in the central west, and early in March sold 35,000 tons of rails to the Illinois Central, making a total of 60,000 tons of rails which will come into the United States duty free under the present law. There may be additional sales, as it is understood the Canadian mill set out to sell 100,000 tons.

There is no price agreement on rails in the United States. The railroads and the rail mills are both of the opinion that for the safety of the public no attempt should be made to make rails too cheap and that the efficient method of attaining the best possible rail at a reasonable and fair expense is to have a standard price, \$28 for Bessemer and \$30 for open-hearth rails, and then compete to get the best rail that can be secured for the price, with extras

for cases in which a railroad for special service desires a rail of extraordinary quality. The rails being furnished are substantially as good as can be furnished, year in and year out, for the money.

Now comes our unscientific tariff and places rails upon the free list. The Canadian rail mill, deprived of its normal Canadian market through the conditions prevailing in Canada, looks across the border and decides, rather than have its plant idle, to make such sacrifices as may be necessary in order to take a tonnage in the United States. In the case of the 35,000 tons of rails for the Illinois Central the price seems to have been about \$27.40, delivered at the lake terminal of the road. The domestic price would have been \$30. Chicago or Ensley, and as some of the rails would have had less freight from Ensley than from Chicago, the saving to the railroad was a trifle less than the apparent \$2.60. It is understood, however, that the Canadian mill agreed to certain terms that the American mills would charge an extra upon, submitting to the "nick and break test" while giving in addition a five-year guarantee.

It is quite wide of the mark for any one to suggest that the officials of the Illinois Central were unpatriotic. They have a duty to their stockholders, besides which they might at some time be called into account by the Interstate Commerce Commission if they refused the apparent saving that the Canadian mill offered. At any rate the Congressional majority and the administration that gave the country free rails consider themselves patriotic.

Here is a concrete result of the American tariff. Can any one show how the people of the United States, or any part of them, have been benefitted by the Illinois Central episode. How the country as a whole has been injured it is quite unnecessary to point out.

U. S. STEEL CORPORATION REPORT.

The report of the United States Steel Corporation for 1914 shows that the volume of business done by all companies during the year, as represented by their combined gross sales and earnings totaled \$558,-414,933, as compared with \$796,894,299 in 1913, a decrease of \$238,479,366. After allowing for dividends and other charges, there was a deficit of \$16,971,983, making the total undivided surplus as of December 31, 1914, exclusive of profits earned by subsidiary companies on inter-company sales of products on hand in inventories, \$135,-704,172. Excluding intercompany business and railroad and miscellaneous receipts, the sales to outsiders of manufacturing, iron ore and coal and coke companies were \$380,-228,143 in 1914 against \$518,999,605 in 1913.

In his report to stockholders Chairman E. H. Gary says: "Since January 1, 1915, there has been a material improvement in the bookings of export business, and it is at present equal to the average of the last three years.

The comparative income account is as follows:

	1914.	Decrease.
Earnings†	\$81,746,517	\$65,420,098
Less interest	10,082,902	*97,630
Balance of earnings	\$71,663,615	\$65,517,729
Less charges, viz.:		
To depreciation and extraordinary replacement funds...	17,044,183	6,928,192
To sinking funds on bonds of subsidiary companies ...	1,903,041	*52,563
To sinking funds on U. S. Steel Corporation bonds	6,195,982	158,183
Net income in year.	\$46,520,407	\$58,800,284
Deduct interest on U. S. Steel bonds outstanding, etc...	23,371,789	58,632,893
Add net balance of sundry charges and credits	124,978	*912,675
Balance	\$23,496,768	\$57,720,217
Dividend on U. S. stock, viz.:		
Preferred, 7 per cent.	25,219,677	.....
Common:		
1913, 5%; 1914, 3%	15,249,075	10,166,050
Surplus net income in the year....	\$16,971,983	\$47,554,167

Appropriated from surplus net income on account of expenditures made on authorized appropriations for additional property and construction and the discharge of capital obligations

15,000,000

Balance of surplus for the year...\$16,971,983 \$32,554,167

Chairman Gary's report adds:

"Contemporaneously with the decrease in demand for and output of commodities there was a decline in the prices obtained for nearly all classes of products. The decrease in prices received in 1914, as compared with 1913, averaged \$2.54 per ton on the total tonnage of rolled and other finished products, and accounted in round figures for \$23,000,000 of the total decrease of \$65,420,098 in the earnings for 1914 as compared with the earnings of the previous year.

"The decreases in production of tubes and of merchant steel and bars were also somewhat larger than the average percentage of reduction for the aggregate tonnage of all products. The total output for the year of all classes of rolled and other finished steel products for sale equaled only about 62 per cent. of the total annual capacity of the plants. The cement production was about 76 per cent. of the annual plant capacity.

"The shipments of all classes of products to customers outside of the organization during 1914, in comparison with the shipments during 1913, were as follows:

	1914.	Decrease Tons.	%
Domestic shipments—			
Rolled steel & other finished products	7,982,325	2,430,105	30.3
Pig iron, ingots, spiegel, ferro and scrap.....	494,144	142,164	28.3
Iron ore, coal and coke ..	1,153,575	463,594	40.2
Sundry materials & by-products	80,357	8,487	9.6
Total tons all kinds of materials, except cement	9,710,401	2,860,022	29.6
Universal Portland cement (barrels)	9,117,752	1,265,131	13.9
Export Shipments:			
Rolled steel & other finished products	1,096,234	660,094	60.3

*Increase †Exclusive of charges for interest on bonds and mortgages of subsidiary companies ‡Deduct.

Balance of surplus December 31, 1914, exclusive of profits earned by subsidiary companies on inter-company sales of products on hand in inventories (see note hereunder)

Note.—An amount of the surplus of subsidiary companies to the extent of \$8,278,545, at December 31, 1914, representing profits accrued on sales of materials and products to other subsidiary companies on hand in latter's inventories, is deducted from the amount of inventories included under current assets in consolidated general balance sheet.

Sundry materials and by-products	190	450	70.3
Total tons and kinds of materials	1,443,714	968,858	36.9
Aggregate tonnage of rolled steel and other finished products shipped to both domestic and export trade	9,078,559	3,090,199	25.4
Total tonnage of business carrying on above tonnage) —			
Domestic	337,444,052	113,737,479	25.2
Export	42,784,091	25,033,783	36.9
	\$380,228,143	138,771,462	26.7

"The average number of employees in the service of the corporation and the subsidiary companies during the entire year 1914 was 179,353, compared with 228,906 in 1913, a decrease of 21.65 per cent. The total amount of the payrolls in 1914 was \$162,379,907, in comparison with \$207,206,176 in the preceding year, a decrease of 21.63 per cent. The average salary or wage per employe per day, exclusive of the administrative and selling forces, was \$2.88, and including all employes, \$2.97 per day. These average rates were slightly higher than the averages for 1913, owing to the fact that the general advance in wages made in 1913 did not take effect until February 1 of that year.

"Construction work on the new steel plant at Duluth, also on the new cement plant at same place, together with work on the adjoining town site of Morgan Park, progressed actively until the early fall of 1914, when construction operations were materially curtailed because of the severe depression in the iron and steel industry. By the expenditure of about \$3,000,000 additional these plants will be ready for operation. It is hoped business conditions may warrant the completion of the work during the current year.

"On account of the disturbed and uncertain condition of the steel industry prevailing at the close of the year, the large number of employes who at that time were laid off because of mills being shut down or running only on part time, and also because of stock market conditions, it was decided not to offer the employes the usual annual privilege of subscribing for stock under the plan which had been observed during each of the preceding twelve years. At the close of the year there were 40,719 employes who had subscribed during the preceding five years and who then either held stock certificates in their own names or were paying for subscriptions in installments.

"During the year there was disbursed by the trustees of the United States Steel and Carnegie Pension Fund the sum of \$548,980. At the close of the year there were 2,521 names on the pension rolls."

The production of raw, semi-finished and finished products by subsidiary companies in the year 1914, compared with the year 1913:

Iron ore mined—	1914.	1913
In Lake Superior	Tons	Tons
Missile range	10,894,463	21,634,206
Vermilion range	1,112,854	1,301,163
Gogebic range	1,469,601	1,871,700
Menominee range	874,909	980,346
Marquette range	496,896	583,266
In Southern ore regions		
Tennessee Coal, Iron & R. R.		
Co.'s mines	2,186,258	2,367,770
Total	17,034,981	28,738,451
Limestone quarried	4,676,479	6,338,504
Coal mined		
For use in the manufacture		
of coke	15,890,382	24,081,162
For steam use and all other		
purposes	5,271,911	6,705,381
Total	21,162,293	30,786,573
Other manufactured		
In bee-hive ovens	7,092,792	11,062,138
In by-product ovens	4,081,122	5,601,342
Total	11,173,914	16,663,480
Best furnace productions		
Pig iron	9,909,062	13,879,706
Steel	25,397	65,236
Pure manganese and silicon	117,998	135,788
Total	10,052,457	14,080,730
Steel made in production		
Bessemer ingots	4,151,510	6,131,809
Open hearth ingots	7,674,966	10,524,552
Total	11,826,476	16,656,361
Rolled and the finished steel products for sale—		
Steel rails, heavy and light		
(tee and girder)	978,907	1,927,745
Beams, joists, slabs, sheet		
and tin plate bars	921,826	842,175
Plates	689,241	1,108,147
Heavy structural shapes	613,739	998,624
Merchant steel, bars, hoops,		
bands, skelp, etc.	1,423,740	2,024,192
Tubing and pipe	818,435	1,186,740
Wire rods	164,153	174,478
Wire and products of wire ..	1,380,376	1,432,182
Sheets (black and galvanized)		
and tin plate	1,075,419	1,280,537
Finished structural work ..	521,225	652,363
Angle splice bars and all other		
rail joints	129,840	256,676
Spiles, bolts, nuts and rivets	62,133	86,465
Axles	64,662	159,075
Steel car wheels	53,638	93,375
Sundry steel and iron products.	117,169	152,064
Total	9,014,512	12,374,838
Spelter	28,031	30,474
Sulphate of iron	30,212	33,829
	Barrels	Barrels
Universal Portland cement ..	11,197,000	11,197,000

OUR SMALL RAIL PRODUCTION.

The year 1914 was certainly an "off year" in rail production. It was well known that demand was very light, but the official statistics given elsewhere in this issue make a particularly poor showing, the total rail production in 1914 being 44.5 per cent, less than that of 1913 and 51.9 per cent, less than that of 1906, the banner year.

There were, of course, other influences than hard times or the Interstate Commerce Commission that caused the extremely light production of 1914. These influences alone could not make the production in one year less than half what it was eight years earlier. There was a special demand for rails for the steam roads in a certain period, the high point of which was 1906, because a large proportion of the rails in service were light, unable to stand up under the heavier cars and locomotives that had rapidly come into vogue, and so a large quantity of replacement had to be done quickly. The new rails, being of section more suited to the duty, are standing up much better.

That was one of the causes of the 1906 rail production being so heavy, as compared with the production in more recent years. It may be several years before the 1906 record is passed. Such a thing is not new in rail production statistics. There was a maximum reached in 1887, due to the building of new road, and that record was not broken until 1899, 12 years later. Moreover, there were heavy imports in 1887, so that the apparent consumption of that year was not exceeded until 1901, 14 years later.

It may be interesting to estimate where the rails went. The total production in 1914 was 1,945,095 tons. The exports were 174,680 tons, or 6.2 per cent less than in 1913, so that the export trade fell off more than the domestic. There was 238,423 tons of rails under 50 pounds per yard, and while some of this tonnage was exported the major part stayed at home and did not go to steam roads, but to various industrial operations. Then there was 136,889 tons of girder and high T rails for electric and street railways, a decrease of 29.9 per cent. from 1913, or much less decrease than there was in the total. Then there was a tonnage of standard T rails that went to industrial operations and to electric lines.

Making allowance for these various items, it appears that in 1914 there was about 1,300,000 tons, or a trifle more, that went to the regular steam roads. The

Railway Age Gazette reported 2,127 miles of first and multiple track added in 1914 by the steam roads, but did not report yard and siding track. Taking the total of all new track at 2,000 miles and assuming it to be laid in 85-pound rails on an average would show 334,000 tons used on new track, an outside estimate, being substantially one million tons as representing the replacements by the steam of a corresponding importance, the other being exceeded as traffic grew, and a million arrived at years ago, by a study of various data that we considered at the time as reasons ordered for replacement, in a very small way. That is an annual estimate we poor year industrially, indicates to our mind that the railroads were not extremely niggardly in their work. What our does the total production so greatly was the extremely small amount of new construction, and the exceptionally light exports. There have been several years in which that that was practically a minimum to be more than 10,000 miles of new steam track was laid.

The Bessemer rail has almost disappeared. Of rails reported by processors excluding the tonnage of re-rolled rails, Bessemer comprised only 17.5 per cent, whereas it was not until 1911, three years earlier, that the open-hearth rail passed the Bessemer. Even this 17.5 per cent. of Bessemer rails in 1914 was probably nearly all "exceptional" in one way or another. Thus of rails 85-pound and over the Bessemer proportion was only 10.9 per cent, and it is quite likely that a considerable part even of that tonnage was exported. The regular steam and electric roads have practically abandoned the Bessemer rail. That is rather a sudden development, seeing that in 1906, only eight years earlier, open-hearth rails constituted only 4.7 per cent. of the total.

How many people consider the expense involved in this change? The steel interests have built the open-hearth plant necessary, at great expense, and the Bessemer plant is rendered correspondingly useless. These things cost money. Somebody has to pay. The traveling public has not paid and the railroads have not paid, seeing that the industry in 1906 made practically 4,000,000 tons of rails, with scarcely any open-hearth, and the average annual production since then has been less than 3,000,000 tons. The steel mills have quietly stood the expense and we cannot recall a public word of complaint from them.

RAIL PRODUCTION STATISTICS.

The Bureau of Statistics (Philadelphia) of the American Iron and Steel Institute, presents the official statistics of rail production in the United States in 1914. The figures all refer to gross tons of 2,240 pounds.

Production of Rails By Processes.

Years.	Open-hearth.	Bessemer.	Rerolled.*	Electric.	Iron.	Total.
1897	500	1,644,520	to 1897 from Bessemer and open-hearth steel rails 1910 inclusive.	...	2,872	1,647,892
1898	1,220	1,976,702		...	3,319	1,981,241
1899	523	2,270,585		...	1,592	2,272,700
1900	1,333	2,587,654		...	695	2,585,682
1901	2,093	2,870,816		...	1,730	2,874,639
1902	6,029	2,935,392		...	6,512	2,947,933
1903	45,054	2,946,736		...	667	2,992,477
1904	145,883	2,137,957		...	871	2,284,711
1905	183,264	3,192,347		...	318	3,375,929
1906	186,413	3,791,459		...	15	3,977,887
1907	252,704	3,380,025		...	925	3,633,654
1908	571,791	1,349,153		...	71	1,921,015
1909	1,256,674	1,767,171		†	...	3,023,845
1910	1,751,359	1,884,442		†	250	3,636,051
1911	1,676,923	1,053,420	91,751	162	294	2,822,790
1912	2,105,144	1,009,926	119,390	3,455	...	3,327,915
1913	2,527,710	817,591	155,041	2,436	...	3,502,780
1914	1,525,851	323,897	95,169	178	...	1,945,095

* Rerolled from old steel rails and renewed rails which the manufacturers could not classify as Bessemer or open-hearth. † Small tonnages rolled in 1909 and 1910 but included with Bessemer and open-hearth rails for these years.

Girder and high T rails for electric and street railways are included in the figures given above. For recent years the tonnage thus included was as follows: 1911, 205,409; 1912, 174,004; 1913, 195,659; 1914, 136,889 gross tons.

There were 24 works active in 1914 making rails, there being 14 that made open-hearth, nine that made Bessemer, one that made electric rails and ten that renewed rails or rerolled old rails. Among the total 24 works, of course, there were some that practiced more than one process.

Production of Rails by Weights and Processes, 1914.

Kinds.	Under 50 lbs.	50 less 85 lbs.	85 lbs. and over.	Total.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Open-hearth	96,068	211,414	1,218,369	1,525,851
Bessemer	78,280	97,063	148,554	323,897
Rerolled	64,061	1,358	29,750	95,169
Electric ..	14	30	134	178
Total	238,423	309,865	1,396,807	1,945,095

Included above is the annual production of alloyed-treated rails, shown separately in the following table.

Production of Alloy-Treated Steel Rails, 1914.

Alloys.	Total.	Production by processes.	
	Production.	Open-hearth and electric.	Bessemer.
Titanium	23,321	22,831	490
Manganese	4,616	4,616	...
Total	27,937	27,447	490

TOPICAL TALKS ON IRON.

XXV. How Materials are Sold: Finished Steel.

In previous talks we have discussed how ore, coke, scrap, pig iron and unfinished steel are sold. Those products really are sold, but with much of the finished steel that changes ownership eventually there is no definite sale. Often the courts have been called upon to determine at what stage in the course of the various operations involved in a legal change of title to real estate the sale was actually consummated, and they have succeeded in deciding such cases.

In the case of a large tonnage of finished steel the first operation is the making of "a contract", whereby A "sells" and B "buys" a certain quantity of steel of a certain general description, as plates, merchant bars or sheets, the "specifications" to be given in equal monthly quantities over a period of time, generally three or six months. If those specifications are not furnished the shipment is not made. When specifications have been furnished the so-called buyer frequently undertakes to cancel or change the specification, as the so-called seller usually acquiesces.

Such so-called "contracts" are really options, and how loose the practice has been is illustrated in interesting fashion by the fact that the mills felt they had instituted a great and valuable reform recently, when they established rather generally the practice that in a contract for three or six months each month's quota of specifications should be considered a separate item whereby if, for instance, the buyer did not specify the January quota that tonnage would be canceled and could not be specified in February or March in addition to the quotas allotted for those months.

The practice just outlined does not obtain with all finished steel by any means. It is the common practice in the case of sales to jobbers, and applies to the majority of ordinary manufacturing consumers. It does not apply to buyers who are in the habit of taking large contracts for their finished product. Thus the structural shop, in bidding on a large contract for fabricated steel, usually obtains an option on the specific tonnage of steel required, the option automatically becoming a contract in case the fabricated steel contract is secured.

Likewise in the case of large orders for freight cars the car shop secures an option on the steel that may be required for the particular car order.

In steel selling circles there has been considerable discussion in recent years as to how the selling practice may be improved by making contracts more binding. At first there seemed to prevail an idea that the wording of the contract was the vital element and some serious efforts were made to compose a form of wording that would change trade practices. It has since become more generally recognized, however, that it is not the form of the contract, but the substance of the operations, that must be changed. It would be a financial impossibility, very frequently, for buyers to live up to the contracts that were commonly made a few years ago, since as a rule the buyer of the steel must sell it again in the same or a more finished form. When a contract is made the seller cannot but realize as well as the buyer the uncertainties involved. In a rough way the uncertainties may be said to increase as the square or the cube of the term, so that the uncertainties in a six-month contract are from four to eight times as great as those in a three-month contract, and thus it has become recognized that the greatest reform is to shorten the contract. In many cases contracts formerly made for six months or a year are now made for three months only.

The steel products of the steel works are usually sold by weight, but there are a number of exceptions. While nails are sold by weight in a sense the unit is the keg and the keg is made to weigh 100 pounds, but the count is by kegs and not by bulk weight of the shipment. Fabricated wire fence is sold by the rod. Pipe is sold by the foot, there being a standard list giving prices per foot of different sizes, quotations being made on discounts from list. Tin plate is sold by area, most tin plate being sold against a base box of 31,360 square inches, that being the equivalent area of 112 sheets, 14x20 inches in size. The actual product as shipped is a "case", the case containing more or less than a base box according to the size and number of sheets it contains.

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THE SITUATION.

Merchant pig iron production is at a slightly greater rate than the low rate that was continued with practically no change from October to February inclusive. Steel mill operations are at an average rate of more than 65% of capacity, with isolated but important cases of mills operating at 80 to 90% of capacity.

Pig iron prices are, on the whole, very steady, and at an exceptionally low level, our composite being at \$12.865. This, barring a short lived exception during March, is the lowest average since 1904.

Unfinished steel is at a slightly higher level than had obtained since early November but is inactive, consumers being covered by old contracts.

Finished steel prices are very steady, at a slightly higher average level than a month ago and at an average of fully \$2 a ton higher than obtained in December.

The merchant blast furnaces, with the exception of the Buffalo group, have less business on their books than at any time since November. The steel mills have a slightly larger volume of contract business on books than a month or two months ago, but the change is not material. They have a very small amount of business on books actually specified, as they are making shipments practically as fast as orders are booked, but here and there slight accumulations exist.

The March Movement.

Pig iron was dull in all markets in March with the exception of the Buffalo market. The furnaces in that district engineered a movement of about a week's duration, beginning about March 18th which in quickness, volume of turnover and total number of sales made excelled the movement in Buffalo iron the second and third weeks of last November. At that time the Buffalo furnaces sold at about \$1.50 lower than had been done at any previous low point in this history of that market, sales being made at \$12 and at a shade less, f.o.b. furnace. In the March movement the average seems to have been about \$11.75, or possibly a trifle more. Reports have had it that \$11.50 was done, but this was probably exceptional. Between the November and March movements the Buffalo market had

been marked up about \$1 a ton and the market is now in process of making a similar advance. The Buffalo furnaces seem to have established a practice of letting down the bars at intervals and buyers seem quite content to act with them when the time comes. The Buffalo furnaces do not sell simply in a well defined tributary territory, but apparently go as far afield as necessary to gather tonnage, into New England, clear to the seacoast to compete with southern iron, and directly east and even southeast, to compete with eastern Pennsylvania furnaces in fields until recently regarded as the sole property of the eastern furnaces.

A fact which it is difficult to comment upon is that the records of the American Pig Iron Association show that at the monthly meeting preceding this drive the Buffalo furnaces contributed cost data which indicated by the association's composite method of compilation that the average cost of making pig iron in the Buffalo district was \$12.72 per ton.

The November movement in Buffalo pig iron was followed by greater activity in other districts. The March movement seems to have had a reverse influence, reports from most districts indicating that buyers were so disturbed by the Buffalo decline that they concluded to postpone action. It is not easy to understand such an attitude, seeing that to move the iron in March the Buffalo furnaces practically took off a paper advance that had occurred after the November movement, whereas other districts had not made such a paper advance.

There was little contracting for steel products in March, although it was the end of the quarter month, the reason being that large buyers had as a rule already contracted, a few in December, at the time they placed contracts for first quarter, and others in January and February. The next heavy contracting movement will be when—or if—they take hold largely for third quarter, at some time in the present quarter.

Specifications against contracts were heavier in March than in February, continuing the market improvement that began in this respect in December. The volume of contracting is accurately indicated by the rate of steel mill operations, as the

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mills have been filling orders practically as fast as received.

Mill Operations.

We estimate steel mill operations during March at fully 65% of capacity, against 55% in February, 40 to 45% in January and not over 35% in December. These percentages are in terms of ingot capacity, not finishing capacity. There is, as usual, an excess of finishing capacity over steel making capacity, whereby if steel departments

were operated at capacity the various finishing departments would operate at, say 80 to 100% of their respective capacities.

In point of productive activity the various branches operated in approximately the following order, the first named showing the highest rest; Tin plate, wire, merchant bars, pipe, sheets, plates, structural shapes, rails.

Steel Prices.

The large steel mills have carried out

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	Bessemer, Basic, No. 2 fdy, Basic			No. 2	X fdy, Cleve-	Chi-	Birm-	mangan-	nace	
	Valley			Phila.	Phila.	land.	cago.	ingham.	ese.*	coke†
1913—										
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00 3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00 2.60
Mar. .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00 2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00 2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00 2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00 2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00 2.50
Aug. .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70 2.50
Sept. .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50 2.37
Oct. .	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28 2.10
Nov. .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00 1.88
Dec. .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00 1.77
Year .	16.26	14.77	14.87	16.22	16.56	15.12	15.37	16.39	11.73	57.87 2.38
1914—										
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42 1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33 1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40 1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00 1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00 1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00 1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50 1.75
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡ 1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00 1.70
Oct. .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00 1.65
Nov. .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00 1.60
Dec. .	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00 1.60
Year .	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80 1.72
1915—										
Jan. ..	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00 1.55
Feb. .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00 1.53
Mar. .	13.60	12.50	12.75	13.50	14.55	11.74	13.25	13.40	9.42	78.00 1.50

* Contract price, f.o.b. Baltimore; †Prom pt. f.o.b. Connellsville; ‡Avers

‡ Spot shipment; no contract market.

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the program they announced individually early in February with respect to bars, plates and shapes, that the price would be 1.10c for specifications received during February, 1.15c for March and 1.20c for second quarter. The market is now, nominally at least, 1.20c, but in some at least of the products there is more or less shading by eastern and Chicago district mills. The large mills are disposed to stand by their program, not so much as a matter of principle as because they are fairly comfortably fixed. They may lose orders now and then but are not likely to be seriously disturbed unless at some later time they find they are losing tonnage that should be specified in

the second quarter, on old contracts written at less than 1.20c.

Specifications for wire products came in freely during March, most large contracts being on the basis of \$1.50 for nails, though by two successive advances the wire market has been nominally at least on at \$1.60 basis. It has been understood that all the \$1.50 contracts expired not later than April 1st, and the test in April will be whether specifications will be obtainable easily on \$1.55 contracts.

Black sheets showed a slight firming up about the middle of March, above the 1.80c level, but lost the gain before the end of the month. Galvanized sheets continued to

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

	Wire Cut				Sheets		Tin		Composite	
	Shapes.	Plates.	Bars.	Pipe.	Wire,	Nails.	Black.	Galv.	plate.	Finished
					Nails.	Nails.				steel.
1913—										
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.22	3.47	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	1.7646
April	1.45	1.45	1.40	79 $\frac{3}{4}$	1.60	1.80	1.70	2.35	3.45	1.7743
May	1.45	1.45	1.40	79 $\frac{1}{2}$	1.60	1.80	1.70	2.35	3.40	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	1.7600
August	1.45	1.44	1.40	79 $\frac{3}{4}$	1.47	1.67	1.60	2.20	3.25	1.7400
September .	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	1.6779
November .	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	1.5558
Year	1.42	1.41	1.38	79 $\frac{1}{4}$	1.50	1.70	1.66	2.21	3.28	1.7241
1914—										
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	1.5394
February ..	1.25	1.21	1.22	79 $\frac{1}{2}$	1.40	1.60	1.60	1.95	2.95	1.5794
March	1.21	1.18	1.20	79 $\frac{1}{2}$	1.40	1.60	1.60	1.95	2.95	1.5638
April	1.18	1.15	1.15	79 $\frac{3}{4}$	1.40	1.60	1.60	1.90	2.89	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	1.5421
September..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	1.5630
October	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	1.5236
November ..	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	1.5182
1915—										
January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	1.4554
February ...	1.10	1.10	1.10	80 $\frac{3}{8}$	1.38	1.58	1.55	1.80	3.09	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.85	3.40	1.5098

IRON AND STEEL.

be quoted by mills on the 3.40c basis, but very little tonnage was obtained at the figure, consumers either holding off, buying from jobbers at cut prices, or being satisfied with mill deliveries they could obtain on old contracts. Towards the close of the month several mills were taking business at less than 3.40c basis, but whether or not this was confined to gauges heavier than No. 28 is not certain. As the galvanized sheet advance originally made by the mills, attributed to the extremely high price of spelter, was an equal amount per ton on all gauges, they could readily afford to shade prices on heavy gauges even though they might not make a cent in filling a 28 gauge order at 3.40c.

Exports.

In the four months ending January, the latest month for which export statistics are available, the total exports of the lines reported by weight averaged 139,000 gross tons a month. While current reports of large individual export orders booked are probably as inaccurate as the reports of last September and October, totally discredited by the government returns of actual exports which appeared later, there is fairly trustworthy information that since the first of the year export orders have been running much heavier than formerly, perhaps at double the old rate. Whether the tonnage can all be shipped is another matter, it being very difficult to secure bottoms, but as to a large part at least of the orders placed by governments involved in the war these governments will find the bottoms, at whatever cost necessary. It is possible that exports are now running at 200,000 to 300,000 tons a month, but exports even at 300,000 tons a month would represent less than 20% of the current production. The export trade is distinctly not the backbone of the iron and steel market at present.

It is important to note, however, that the export trade is having an important sentimental effect upon the market, in that as regards the bulk of the export tonnage sold the prices are higher than are being real-

ized in current shipments in the domestic trade. In the case of tin plate there is a wide divergence.

Prospects.

The condition of the steel trade is marvellous. With business more or less generally prostrated, with railroad buying at an extremely low bid, with scarcely any money at all being invested in permanent works, and with only very moderate support from the export trade, the steel industry has reached a stage of operating at somewhat more than 65% of capacity. If normal conditions mean that railroads should take the same proportion of the steel output as they did in 1906, that there should be as large a proportion of the output go into permanent works, new factories, bridges, buildings, power development plants and the like, as was the case in 1906, and if the steel industry ought to ship as large a percentage of its output abroad as it did in 1912, then the steel industry is altogether undersized and cannot possibly meet the normal demand. Furthermore, there is every reason to believe that the industry is not able, and will not be able under present conditions, to operate at its physical capacity, by reason of an insufficient supply of labor.

A careful scrutiny of the demand the steel mills have lately experienced indicates that, on the whole, it is such as is likely to be continued indefinitely, while there is room for a further expansion in this current demand for an increase due to better business conditions generally, and there is room in addition for a very large expansion in railroad demand and in demand for materials that enter into permanent structures, for railroad and general investment demand has been extremely light.

The steel industry is likely to lose little if any of the improvement it has recently experienced, while it is confronted with the possibility, within a few months, of demand reaching a volume impossible of meeting, with consequent spectacular advances in prices, particularly of crude and semi-finished materials.

COMPOSITE STEEL.

Computation for April 1, 1915:

Pounds.	Group.	Price.	Extension.
24	Bars	1.20	3.000
1½	Plates	1.20	1.800
1	Shapes	1.20	1.800
½	Pipe (¾-3)	2.00	3.000
1½	Wire nails	1.60	2.400
1	Sheets (28 bl.)	1.80	1.800
2	Tin plates	3.20	1.600
10 pounds			15.400
One pound			1.5400

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	.....
May	1.7510	1.5590	1.7786	1.5078	.....
June	1.6817	1.5794	1.7719	1.4750	.....
July	1.6701	1.6188	1.7600	1.4805	.....
Aug.	1.6394	1.6784	1.7400	1.5421	.....
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel, Pitts.	Bundled Sheet, Pitts.	No. 1 R. R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Heavy Steel, Phila.	Melt'g. Ch'go.
1913—						
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.52	11.51	11.71	10.53	9.55
1915—						
Jan.	11.40	9.20	10.75	11.25	10.30	9.00
Feb.	11.70	9.25	10.75	11.25	10.70	9.20
Mar.	11.80	9.37	10.75	11.50	10.85	9.25

COMPOSITE PIG IRON.

Computation for April 1, 1915:

One ton Bessemer, valley	\$13.60
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.00
One ton No. 2X foundry, Buffalo	12.25
One ton No. 2 foundry, Cleveland	13.25
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry, Cincinnati (12.15)	24.30
Total, ten tons	\$128.65
One ton	\$12.865

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	.....
May	14.242	13.917	15.682	13.808	.....
June	14.032	14.005	14.968	13.606	.....
July	13.926	14.288	14.578	13.520	.....
Aug.	13.874	14.669	14.565	13.516	.....
Sept.	13.819	15.386	14.692	13.503	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv. — Phila. Pitts. Ch'go.		
1913—						
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug.	20.17	21.08	25.25	1.18	1.25	1.07
Sep.	20.75	21.75	26.00	1.18	1.20	1.07
Oct.	20.00	20.70	26.00	1.14	1.20	1.01
Nov.	19.25	19.75	25.00	1.13	1.20	.96
Dec.	18.75	19.25	24.40	1.12	1.20	.91
Year	20.06	20.82	25.50	1.20	1.27	1.07
1915—						
Jan.	19.25	19.75	24.80	1.12	1.20	.97
Feb.	19.25	19.75	25.00	1.12	1.20	1.03
Mar.	19.30	19.80	25.00	1.13	1.20	1.10

* Premiums for Bessemer.

* Premiums for Bessemer.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	\$14,994,382	\$14,126,802	\$17,826,973
2nd	20,457,596	41,219,813	25,102,266
3rd	22,276,002	38,450,100	30,063,512
4th	10,935,635	23,084,330	35,181,922
Year	71,663,615	137,181,345	108,174,673
	1911.	1910.	1909.
1st	\$23,519,203	\$37,616,877	\$22,921,269
2nd	28,108,520	40,170,961	29,340,492
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,755	131,491,414

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643

CAR BUYING.

Freight cars ordered:

First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	8,000	
April	10,000	
May	10,000	
June	15,000	
July	7,000	
August	3,100	
September	95	
October	1,725	
November	550	
December	1,150	
Year, 1914		80,000
1915		
January	3,300	
February	4,255	
March	1,287	

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
	%	%	%	Tons.
May	95	41	-54	-654,440
June	93	47	-46	-517,005
July	90	55	-35	-407,961
August	90	75	-15	-175,888
September	82	74	-18	-219,683
October	87	74	-40	-490,018
November	70	59	-11	-117,420
December	50	40	-10	-114,239
January 1914	55	83	+28	+331,572
February	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	+ 5	+ 54,742
September	62	24	-38	-425,664
October	55	28	-27	-326,570
November	45	32	-13	-136,505
December	38	82	+44	+512,051
January 1915	44	81	+37	+411,928
February	57	66	+ 9	+ 96,800

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1914—	Pig iron.	Rails.	Tin Plate.	Total*
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct. ...	47,188	37,005	26,950	263,834
Nov. ...	49,666	16,181	30,942	240,617
Dec. ..	31,705	16,315	30,254	212,667
Year	90,405	435,440	435,497	3,977,468
1915—				
Jan. ...	21,138	24,411	29,216	230,204
Feb. ...	21,934	14,877	25,101	198,804

* Includes scrap, pig iron, rolled iron and steel cast, and wrought iron manufactures, bolts, nuts etc., but not finished machinery, boilers, tools etc.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our composite finished steel. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1913—							
Nov. 7	Bars	1.35	to 1.30	" 11	Shapes	1.15	to 1.20
" 17	Sheets	2.00	to 1.95	" 14	Tin plate	3.40	to 3.60
" 25	Bars	1.30	to 1.25	" 21	Wire nails	1.55	to 1.60
" 25	Plates	1.30	to 1.25	" 31	Sheets	1.90	to 2.00
" 25	Shapes	1.35	to 1.30	Sept 16	Tin plate	3.60	to 3.30
" 28	Wire nails	1.60	to 1.55	" 26	Sheets	2.00	to 1.95
Dec. 2	Sheets	1.95	to 1.90	" 29	Bars	1.20	to 1.15
" 3	Shapes	1.30	to 1.25	" 29	plates	1.20	to 1.15
" 4	Plates	1.25	to 1.20	" 30	Tin plate	3.30	to 3.25
" 11	Bars	1.25	to 1.20	Oct. 5	Sheets	1.95	to 2.00
" 22	Shapes	1.25	to 1.20	" 7	Shapes	1.20	to 1.15
Dec. 31	Sheets	1.90	to 1.80	" 22	Sheets	2.00	to 1.90
1914—				" 27	Plates	1.15	to 1.10
Jan. 6	Wire nails	1.55	to 1.50	Nov. 2	Pipe (extra 2½% removed)		
" 7	Sheets	1.80	to 1.85			80% to 81%	
" 13	Wire nails	1.50	to 1.55	" 5	Bars	1.15	to 1.10
" 21	Sheets	1.85	to 1.90	" 5	Shapes	1.15	to 1.10
" 30	Sheets	1.90	to 1.95	" 18	Sheets	1.90	to 1.85
Feb. 2	Pipe	80% to 79½%		" 24	Plates	1.10	to 1.05
" 2	Wire nails	1.55	to 1.60	" 24	Wire nails	1.60	to 1.55
" 4	Shapes	1.20	to 1.25	Dec. 1	Bars	1.10	to 1.05
Mar. 9	Shapes	1.25	to 1.20	" 1	Shapes	1.10	to 1.05
" 20	Plates	1.20	to 1.15	" 3	Tin plate	3.25	to 3.20
April 1	Bars	1.20	to 1.15	" 4	Wire nails	1.55	to 1.50
" 8	Sheets	1.95	to 1.90	" 28	Tin plate	3.20	to 3.10
" 17	Shapes	1.20	to 1.15	" 30	Sheets	1.85	to 1.80
" 20	Pipe	79½% to 80%		1915—			
" 27	Sheets	1.90	to 1.85	Jan. 1	Bars	1.05	to 1.10
" 29	Tin plates	3.40	to 3.30	" 1	Plates	1.05	to 1.10
May 19	Bars	1.15	to 1.12½	" 1	Shapes	1.05	to 1.10
" 22	Wire nails	1.60	to 1.55	" 11	Wire nails	1.50	to 1.55
" 26	Shapes	1.15	to 1.12½	Feb. 11	Wire nails	1.55	to 1.60
" 29	Plates	1.12½ to 1.10		" 11	Pipe	81% to 80%	
" 29	Wire nails	1.55	to 1.50	" 15	Galv. sheets	3.00	to 3.25
June 9	Sheets	1.85	to 1.80	" 25	Galv. sheets	3.25	to 3.40
" 19	Bars	1.12½ to 1.10		Mar. 1	Bars	1.10	to 1.15
" 19	Shapes	1.12½ to 1.10		" 1	Plates	1.10	to 1.15
July 20	Wire nails	1.50	to 1.55	" 1	Shapes	1.10	to 1.15
1914—				" 1	Wire galvanizing		
" 21	Bars	1.10	to 1.15			differential 40c	to 50c
" 21	Shapes	1.10	to 1.15	Mar. 15	Shafting	68% to 70%	
" 23	Plates	1.10	to 1.15		(New list, f.o.b. Pittsburgh		
" 30	Tin plate	3.30	to 3.35		instead delivered)		
Aug. 5	Tin plate	3.25	to 3.40	" 17	Wire galvanizing differential		
" 6	Sheets	1.80	to 1.85		(by A.S. & W.Co.) 50c	to 60c	
" 11	Sheets	1.80	to 1.85	April 1	Boiler tubes	75%	
" 11	Bars	1.15	to 1.20	" 1	Bars	1.15	to 1.20
				" 1	Plates	1.15	to 1.20
				" 1	Shapes	1.15	to 1.20

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	
August	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773	
September ...	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November ...	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December ...	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613	
Totals ...	\$201,271,903	\$249,656,411	\$289,128,420	\$293,934,160	\$199,861,684	\$18,053,421

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	
April	93,285	100,911	117,921	228,149	267,313	259,689	161,952	
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	
June	69,770	114,724	120,601	174,247	273,188	243,108	144,003	
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	
Totals	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,730,681	1,549,503	139,791

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. ..	154,118	175,463	101,804	75,286
Feb. ..	129,693	188,734	112,574	
Mar. ..	157,469	164,865	68,549	
April ..	178,502	174,162	111,812	
May ..	194,482	191,860	125,659	
June ..	180,122	241,069	188,647	
July ..	185,677	272,017	141,838	
Aug. ..	178,828	213,139	135,693	
Sept. ..	180,571	295,424	109,176	
Oct. ..	202,125	274,418	114,341	
Nov. ..	163,017	179,727	90,222	
Dec. ..	199,982	223,892	51,053	
Totals	2,104,576	2,594,770	1,351,368	75,286

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan. ..	33,071	20,008	21,740	17,835	10,568
Feb. ..	20,812	11,622	25,505	14,309	
Mar. ..	23,533	15,466	27,467	27,829	
April ..	22,392	12,481	25,742	30,585	
May ..	23,347	15,949	28,728	28,169	
June ..	29,399	21,407	36,597	23,076	
July ..	15,782	17,882	39,694	25,282	
Aug. ..	10,944	20,571	18,740	28,768	
Sept. ..	14,039	18,740	19,941	38,420	
Oct. ..	21,035	25,559	20,840	22,754	
Nov. ..	13,880	24,154	25,809	24,165	
Dec. ..	19,665	21,231	26,454	9,493	
Total	256,903	225,072	317,260	290,394	10,568

IRON AND STEEL.

IRON AND STEEL IMPORTS AND EXPORTS.

The latest return of imports and exports in detail is for January. The figures for January and many preceding months are given in our regular table on the previous page.

The tonnage exports in January amounted to 139,791 gross tons, showing a decided increase over December, but being slightly below those of October and November. The January exports were 3 per cent in excess of the average for the preceding three months.

In the total value of all iron and steel exports there was a very sharp increase in January. This was doubtless due chiefly to there being large exports of relatively finely finished material for war purposes, including shrapnel, lathes and metal working machinery generally. The total value of all iron and steel exports in January, including the value of the tonnage items as well as the value of machinery, etc., was \$18,053,421, making it the best month since last June, and showing an increase of 15 per cent over the average of the preceding three months.

Automobiles are not included in iron and steel. In January there were 935 commercial cars exported and 1,803 passenger cars, both items showing a large increase over the average of the preceding six months.

Manganese ore imports in January amounted to 9,849 tons, against 26,243 tons in December, 1,761 tons in November, 39,836 tons in October, and a total in the year 1914 of 283,294 tons.

Iron and steel imports in January were inconsequential, on the whole, only 10,568 gross tons, this including 305 tons of rails.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February	1.4831	1.1590	1.024
March-April	1.5430	1.176	
May-June	1.5272	1.1257	
July-August	1.5029	1.0928	
September-October	1.3931	1.0847	
November-December	1.2030	1.037	
Year's average	1.4421	1.1125	

STEEL MAKING PIG AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. . .	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. . .	14.225	13.60	13.059	12.50
Mar. . .	14.1667	13.60	13.041	12.50
April . .	14.00	...	13.00	...
May . .	14.00	...	13.00	...
June . .	14.00	...	13.00	...
July . .	14.00	...	13.00	...
Aug. . .	14.00	...	13.00	...
Sept. . .	14.00	...	13.00	...
Oct. . .	13.9375	...	12.85	...
Nov. . .	13.6375	...	12.477	...
Dec. . .	13.75	...	12.50	...
Year . .	13.9793	...	12.854	...

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

IRON AND STEEL,

THE STEEL CORPORATION'S REPORT.

A synopsis of the United States Steel Corporation's report, issued under date of March 16th, is given elsewhere in this issue. The earnings per ton in 1911 were the lowest in record. The comparison is as follows:

	Total earnings,	Steel products, per ton,	Average net sale, per ton,
1902	\$133,308,764	8,033,556	\$16.59
1903	109,171,152	7,458,879	14.64
1904	73,176,322	6,792,780	10.77
1905	119,787,658	9,226,386	12.98
1906	156,624,273	10,578,444	14.81
1907	160,964,674	10,376,742	15.51
1908	91,847,711	6,206,932	14.80
1909	131,491,444	9,857,660	13.34
1910	141,054,755	10,743,995	13.14
1911	104,305,466	9,476,248	11.01
1912	108,174,673	12,506,610	8.65
1913	147,181,345	12,474,848	11.09
1914	71,667,615	9,014,512	7.95

According to our composite finished steel average market prices were 1.1241c in 1913 and 1.5182c in 1914, which would be a decline of 84.12 per cent. Thus, however, does not include rods, which have not changed in price. The corporation report says that the average decline in its products was \$2.54 per ton, but by reason of there being a larger proportion of the more finished products (like wire products and tin plate) in 1914 than in 1913, the total value of shipments decreased only 26.7 per cent, while the tonnage decreased 25.4 per cent.

The steel corporation's 1912 report gave, for the first time, a statement of the volume of its sales, exclusive of inter-company sales and the receipts of transportation and miscellaneous companies. Previously it had reported only the gross volume of business, and this was naturally no criterion of the volume of business done by the corporation as a unit. The total could be affected, for instance, by such immaterial incidents as to whether the American Steel & Wire Company operated Neville Island furnace and sold the pig iron to the Carnegie Steel Company, or the Carnegie company itself operated the furnace and used the pig iron. The 1912 report gave the 1911 figures

above, and accordingly we compile the following table, showing the sales, exclusive of inter-company and transportation companies, for the same corporation:

1911	8,000,497 tons
1912	4,016,780 tons
1913	518,99,000 tons
1914	480,278,144 tons

The corporation production "rolled and other finished steel products for sale" in 1914 was 9,014,512 tons and as this is stated to have been about 62 per cent of the capacity of the plants, the capacity may be taken at 14,500,000 tons, or 47,000 tons per working day. This is only a composite figure, however, dealing with the corporation's operations, as to sales and shipments, as they are normally distributed, i.e., there is some rod, billet and sheet low tonnage sold, as well as large tonnages of wire products, sheets, tin plates, etc., and the tons refer to the normal distribution. A few of the items, indeed, refer to net tons, the balance being in gross tons. This "capacity", therefore, is purely a commercial capacity and does not refer really to exclusively finished products, while of course it is very far from representing 100 per cent of pig iron capacity. The mere 47,000 tons per day may properly be used in measuring the corporation's monthly reports of unrolled obligations. Thus, for a 27-day month, like March, the capacity may be taken at 1,269,000 tons, and if there is, of course, an increase of 1,269,000 tons in unrolled 47,000 tons for the month the capacity represents 10 per cent of capacity. If the shipments are estimated at 65 per cent of capacity, then the month's loadings would be estimated at 75 per cent of capacity.

LARGE PIG IRON PRODUCTION.

Pig iron production in March was 2,063,834 tons, or 66,575 tons a day, against 1,674,771 tons in February, or 59,813 tons a day. On April 1 inaugurates a blast numbered 191, with capacity of 70,591 tons a day, against 176 active on March 1, with capacity of 63,033 tons a day. The present rate of production is the highest since April, 1914, when the expansion of the early months of last year was culminating

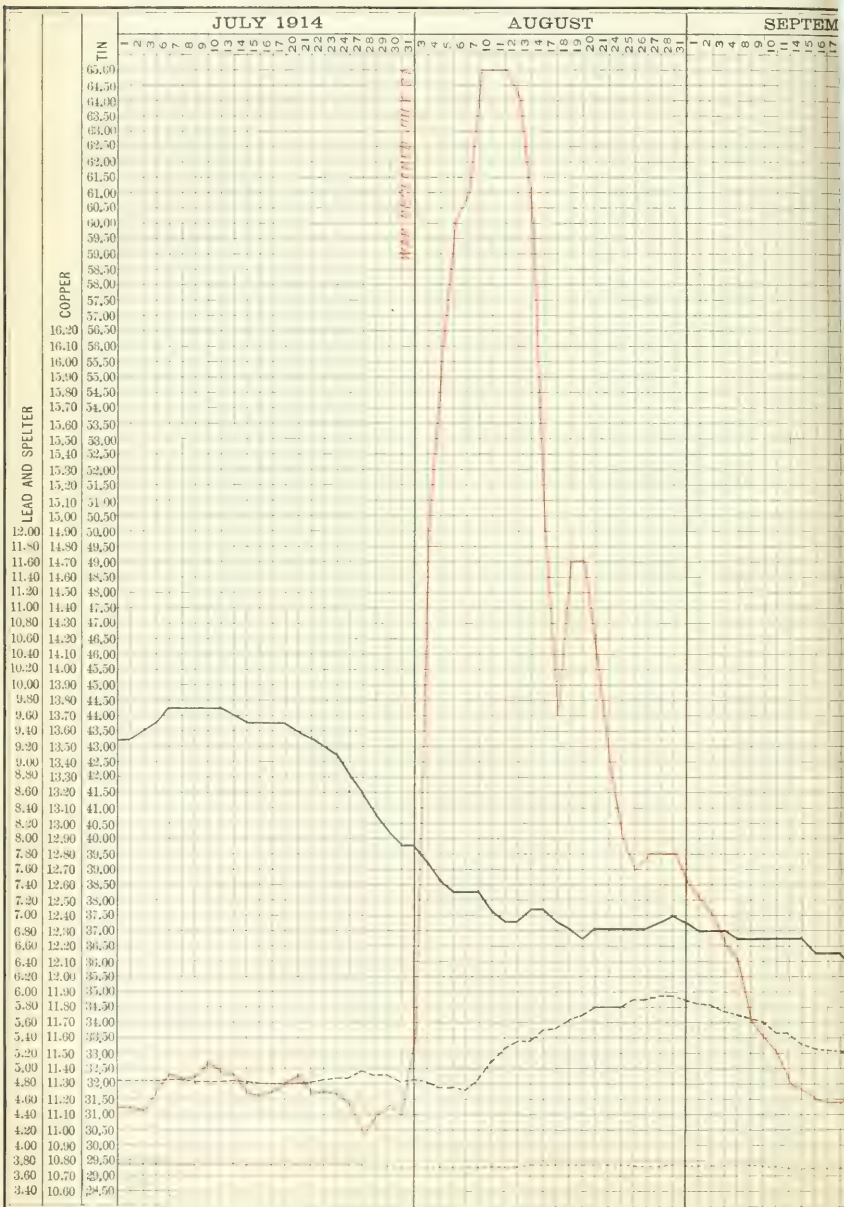
COMPARISON OF METAL PRICES.

	Range for 1913.		Range for 1914.		Range for 1915.		Closing.
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	Mar. 31
Bessemer, valley	17.25	14.25	14.25	13.75	13.75	13.60	13.60
Basic, valley	16.50	12.50	13.25	12.50	12.50	12.50	12.50
No. 2 foundry, valley	17.50	13.00	13.25	12.75	12.75	12.75	12.75
No. 2 foundry, Philadelphia ..	18.50	14.50	15.00	14.20	14.50	14.00	14.00
No. 2 foundry, Cleveland ..	17.75	13.50	14.25	13.25	13.25	13.25	13.25
No. 2X foundry, Buffalo ..	18.00	13.00	13.75	12.25	13.25	11.75	12.25
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	13.50	13.25	13.50
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	9.75	9.25	9.25
Scrap Iron and Steel.							
Melting steel Pittsburgh ..	15.00	10.75	12.00	9.75	12.50	11.00	11.75
Heavy mill steel, Chicago ..	13.25	9.00	11.00	8.00	9.75	8.75	9.25
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	10.75	10.75	10.75
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	11.50	11.00	11.50
Heavy steel scrap, Phila. ..	14.75	9.75	11.25	8.00	10.00	9.50	11.00
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.55	1.65	1.20	1.20	1.20	1.20
Iron bars, Philadelphia ..	1.67½	1.22½	1.37	1.12	1.17	1.12½	1.15
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.15	1.10	1.15
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.15	1.10	1.15
Structural shapes, Pitts. ..	1.50	1.20	1.25	1.05	1.15	1.10	1.15
Grooved steel skelp, Pitts. .	1.45	1.15	1.20	1.12½	1.12½	1.12½	1.12½
Black sheets, Pittsburgh ..	2.35	1.80	1.95	1.80	1.80	1.80	1.80
Galv. sheets, Pittsburgh ..	3.50	2.80	3.00	2.75	3.40	2.65	3.40
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.20	3.10	3.20
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.57	1.55	1.55
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.60	1.50	1.60
Steel pipe, Pittsburgh	79½	80½	79½	81½	80½	81½	80½
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.75	2.00	1.60	1.60	1.50	1.50
Prompt foundry	4.50	2.40	2.50	2.00	2.20	2.00	2.00
Metals—New York.							
Straits tin	51.00	36.75	65.00	28.50	55.00	32.80	51.25
Lake copper	17.75	14.50	15.50	11.30	16.50	13.00	16.50
Electrolytic copper	17.65	14.12½	14.87	11.10	15.87	12.80	15.87½
Casting copper	17.45	13.87½	14.05	11.00	15.22	12.70	15.12½
Sheet copper	22.00	19.75	20.25	16.50	19.75	18.15	19.75
Lead (Trust price)	4.75	4.00	4.15	3.50	4.15	3.70	4.15
Spelter	7.35	5.10	6.20	4.75	11.25	5.70	9.62½
Cooksons antimony	9.87½	7.25	22.00	7.00	30.00	16.00	30.00
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	19.50	18.75	18.75
Silver	63¼	56¼	59½	47	54	48	49½
St. Louis.							
Lead	4.72½	3.85	4.10	3.75	4.12	3.50	4.12½
Spelter	7.17½	4.95	6.00	4.60	11.00	5.55	9.57½
Sheet zinc (J. I. smelter) ..	6.00	7.00	8.75	7.00	12.50	9.00	12.50
London.							
	£	£	£	£	£	£	£
Standard tin, prompts	232	166½	188	132	190	148½	171
Standard copper, prompts ..	77½	61½	66½	49	69½	57½	69½
Lead	24½	15½	24	17½	24	18½	22½
Spelter	261½	204½	33	24	44	28½	44
Silver	293½	277½	317½	250½	300½	273½	273½



The Steel and Metal Digest

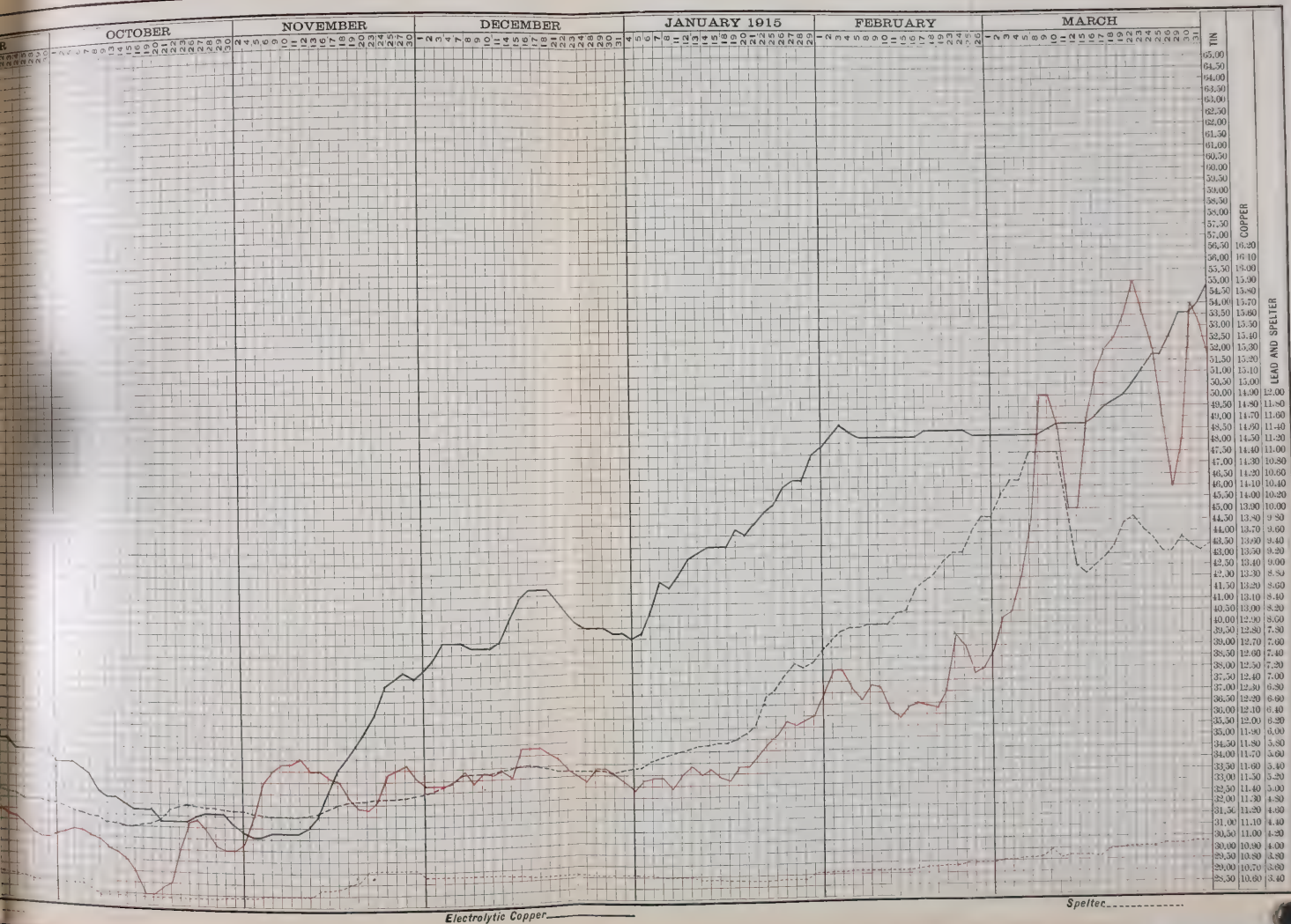
MONTHLY



DAILY METAL PRICE FLUCTUATIONS SINCE THE WAR

COPPER - TIN - LEAD - SPELTER

Plotted according to the monthly average prices of
Electrolytic Copper, New York; Straits Tin, New York;
Lead, St. Louis, and Prime Western Spelter, St. Louis.



LEAD AND SPELTER

12.00
 11.80
 11.60
 11.40
 11.20
 11.00
 10.80
 10.60
 10.40
 10.20
 10.00
 9.80
 9.60
 9.40
 9.20
 9.00
 8.80
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 5.20
 5.00
 4.80
 4.60
 4.40
 4.20
 4.00
 3.80
 3.60
 3.40

COMPARISON OF SECURITY PRICES.

Range for 1913. Range for 1914. Range for 1915. Closing.

Railroads.	High.	Low.	High.	Low.	High.	Low.	Mar. 31.
Atchison, Top. & Sante Fe...	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100 $\frac{3}{8}$	89 $\frac{1}{2}$	100 $\frac{1}{4}$	92 $\frac{1}{2}$	99 $\frac{1}{8}$
Atch. Top. & Sante Fe, pfd.	102 $\frac{1}{8}$	96	101 $\frac{1}{8}$	96	101	96	98 $\frac{1}{2}$
Baltimore & Ohio	106 $\frac{3}{8}$	90 $\frac{3}{8}$	98	87	100	90	72 $\frac{1}{4}$
Canadian Pacific	166 $\frac{1}{2}$	264	220	57	168	120	161 $\frac{1}{8}$
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	49	66	51	45 $\frac{1}{8}$
Chicago, Mil. & St. Paul	116	96 $\frac{1}{2}$	117	84 $\frac{1}{2}$	116	88	89
Erie R. R.	31	20 $\frac{1}{2}$	32	26 $\frac{1}{2}$	30 $\frac{1}{2}$	19 $\frac{1}{2}$	25
Great Northern, pfd.	132 $\frac{3}{4}$	115 $\frac{1}{2}$	134 $\frac{3}{4}$	111 $\frac{5}{8}$	119	112 $\frac{3}{4}$	118
Lehigh Valley	68 $\frac{3}{8}$	54 $\frac{1}{4}$	56	47 $\frac{1}{2}$	57 $\frac{1}{2}$	47 $\frac{1}{2}$	137
Louisville & Nashville	142	126 $\frac{1}{2}$	141	127	141	110	118
Missouri, Kansas & Texas	29 $\frac{1}{2}$	18 $\frac{1}{4}$	30	8 $\frac{1}{2}$	30	7	13 $\frac{1}{2}$
Missouri Pacific	47	21 $\frac{1}{2}$	46	7	47	6 $\frac{1}{2}$	127 $\frac{1}{8}$
New York Central	99 $\frac{1}{4}$	90 $\frac{3}{8}$	96	77	97 $\frac{1}{2}$	81	85
N. Y., N. H. & Hartford	69 $\frac{1}{8}$	65 $\frac{1}{2}$	78	46 $\frac{1}{2}$	67	46	59 $\frac{3}{4}$
Northern Pacific	122 $\frac{1}{2}$	101 $\frac{1}{2}$	118	87	106 $\frac{1}{2}$	76	104 $\frac{1}{4}$
Pennsylvania R. R.	123 $\frac{1}{4}$	106	115	102	108	100	106 $\frac{1}{2}$
Reading	57 $\frac{1}{4}$	51 $\frac{1}{8}$	52	47	55	44 $\frac{1}{2}$	1457 $\frac{1}{8}$
Rock Island	24 $\frac{1}{2}$	11 $\frac{1}{2}$	26	10	27	11	34
Southern Pacific	116	87	99	81	88	81	86 $\frac{1}{2}$
Union Pacific	162 $\frac{1}{2}$	117 $\frac{1}{4}$	164	112	129	117	124 $\frac{5}{8}$
Wabash	6	2	4 $\frac{1}{2}$	1 $\frac{1}{2}$	15 $\frac{1}{2}$	3 $\frac{1}{2}$	1

Industrials.

Amalgamated Copper	80	61	78	48 $\frac{1}{2}$	6	50	62 $\frac{3}{8}$
Am. Beet Sugar	50 $\frac{1}{2}$	19 $\frac{1}{4}$	50	19	45	19	44 $\frac{3}{8}$
American Can	46 $\frac{7}{8}$	21	35 $\frac{1}{8}$	19 $\frac{1}{4}$	32 $\frac{7}{8}$	25	31 $\frac{3}{8}$
American Can Pfd.	129 $\frac{1}{2}$	80 $\frac{1}{2}$	96	80	97 $\frac{1}{2}$	80	95 $\frac{1}{2}$
Am. Car & Foundry	56 $\frac{1}{2}$	36 $\frac{1}{2}$	55	32	48	30	47 $\frac{1}{2}$
Am. Cotton Oil	57 $\frac{1}{8}$	53 $\frac{1}{2}$	46	42	48 $\frac{1}{2}$	39	46 $\frac{3}{4}$
Am. Locomotive	44 $\frac{1}{2}$	27	47	26 $\frac{1}{2}$	49	29	28 $\frac{1}{2}$
Am. Smelting & Refining	74 $\frac{3}{4}$	58 $\frac{1}{2}$	71 $\frac{1}{8}$	50 $\frac{1}{4}$	69 $\frac{1}{8}$	56	68
Brooklyn Rapid Transp.	92 $\frac{1}{2}$	83 $\frac{3}{4}$	87	79	90	84	89 $\frac{1}{4}$
Chino Copper	47 $\frac{1}{2}$	30 $\frac{3}{8}$	47	31	40 $\frac{1}{2}$	32	39 $\frac{1}{8}$
Colo. Fuel & Iron Co.	41 $\frac{1}{2}$	24 $\frac{1}{2}$	44	26	48	27	27 $\frac{1}{4}$
Consolidated Gas	142 $\frac{1}{8}$	125 $\frac{1}{8}$	149	127	142	117 $\frac{1}{2}$	119 $\frac{3}{8}$
General Electric	187	129 $\frac{3}{4}$	150 $\frac{1}{2}$	134	145	138	142 $\frac{3}{8}$
Interborough Metropolitan	19 $\frac{1}{2}$	12 $\frac{3}{8}$	16 $\frac{1}{2}$	10 $\frac{1}{2}$	15	10	137 $\frac{1}{8}$
International Harvester	111 $\frac{1}{2}$	96	111	87	101	90	96
International Steam Pump	18 $\frac{1}{2}$	4 $\frac{1}{2}$	97 $\frac{1}{2}$	3	3	7 $\frac{1}{8}$	2
Lackawanna Steel	49 $\frac{1}{2}$	29 $\frac{7}{8}$	46	26	45	28	35
National Lead	56	41	52	39	67	44	63 $\frac{3}{8}$
Ray Consolidated Copper	27	15	22	15	19 $\frac{1}{2}$	15	19 $\frac{1}{8}$
Republic Iron & Steel	28 $\frac{1}{2}$	17	27	18	27	19	22 $\frac{1}{4}$
Republic Iron & Steel, pfd.	92 $\frac{1}{2}$	72	94	75	100	72	78 $\frac{1}{4}$
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19 $\frac{1}{2}$	29	22	27
Texas Co.	132 $\frac{1}{2}$	89	149	102	143 $\frac{1}{2}$	125 $\frac{1}{2}$	140
U. S. Rubber	69 $\frac{1}{2}$	51	6	44	66 $\frac{1}{2}$	57	64 $\frac{1}{2}$
U. S. Steel Corporation	69 $\frac{1}{8}$	497 $\frac{1}{8}$	67 $\frac{1}{2}$	48	53 $\frac{1}{2}$	48	48 $\frac{3}{8}$
U. S. Steel Corporation, pfd.	110 $\frac{1}{2}$	102 $\frac{1}{2}$	117	100	109	102	105 $\frac{1}{2}$
Utah Copper	60 $\frac{3}{8}$	59 $\frac{1}{8}$	59 $\frac{1}{2}$	45 $\frac{1}{2}$	57 $\frac{1}{2}$	48	56 $\frac{3}{8}$
W.-Carolina Chem.	43 $\frac{1}{8}$	22	34	17	37	15	22 $\frac{1}{8}$
Western Union Telegraph	75 $\frac{1}{2}$	54 $\frac{1}{2}$	76	59	77	57	65 $\frac{1}{4}$

COPPER.

COPPER IN MARCH.

The market opened quiet at 14.85 for Lake, 14.75 for electrolytic and 14.55 for Casting with a very disappointing home demand with the exception of the brass mills who are extremely busy with orders connected with the export of ammunition and war materials. Early in the month, however, a good demand started for export, accompanied with an improving London market, and by the middle of March prices improved to 14.85c for Lake; 14.70c for Electrolytic and 14.55c for Casting. From about March 15th there was a steady almost daily advance in the foreign market up to about £4 per ton at the end of the month. There was also a corresponding movement here and the month closes at 16.75c for Lake, 15.55c for Electrolytic and 15.35c for Casting, with every indication of going higher.

It is to be noted that while during the month the advances in the three different grades has not been universal, as the advance in Lake has been 175c, Electrolytic 155c and Casting only 155c. The explanation for this is that for war material Prime Lake Copper seems to come first, hence the demand for this grade has been larger in proportion, Electrolytic coming second and Casting copper, on account of the unsatisfactory general foundry operations in America has trailed behind.

For war demand has been the cause of the advances here and abroad, but there has also been an element of speculation, and the belief of an early ending of the war has resulted in some larger purchases at high prices for foreign, probably German account, to be shipped after the war. From the exports that have been made and the known unsatisfactory condition of American home consumption, we believe that the stocks in producers' hands are still very large, but that a large proportion of this stock being held has been disposed of for future deliveries. We figure that the stock of copper on January 1st based on figures published by the U. S. Geological Survey was 194,000,000 pounds. The exports for the first three months this year total 156-

000,000 pounds. Home consumption is entirely guesswork, but we were told in January of this year that "home consumption was about normal," normal then meant about the same as before the war started. According to the figures of the Copper Producers Association the home consumption in June, since which there has been no statistics issued, was 46,227,353 pounds. As a fair estimate suppose we say the January home consumption was 50,000,000 pounds, February 50,000,000 and March, say 60,000,000 pounds making a total home con-

COPPER PRICES IN MARCH.

Day	— New York —			— London —	
	Lake. Cents.	Electro. Cents.	Casting. Cents.	Standard. £	s d
1	14.68 1/4	14.55	14.12 1/2	64	12 5
2	14.68 1/4	14.55	14.12 1/2	64	2 5
3	14.68 1/4	14.55	14.00	63	0 0
4	14.68 1/4	14.55	14.12	63	2 5
5	14.68 1/4	14.55	14.12	63	10 0
6	.....	.....	.....	.....	.....
7	.....	.....	.....	.....	.....
8	14.75	14.60	14.20	65	17 5
9	14.80	14.65	14.25	64	7 5
10	14.80	14.65	14.25	64	7 5
11	14.80	14.65	14.06 1/4	64	15 0
12	14.80	14.65	14.06 1/4	64	15 0
13	.....	.....	.....	.....	.....
14	.....	.....	.....	.....	.....
15	14.85	14.70	14.12 1/2	65	5 0
16	14.92	14.80	14.25	66	0 0
17	14.92	14.85	14.25	66	10 0
18	15.00	14.90	14.25	67	0 0
19	15.00	15.00	14.25	67	0 0
20	.....	.....	.....	.....	.....
21	.....	.....	.....	.....	.....
22	15.12 1/2	15.12 1/2	14.57 1/2	68	5 0
23	15.25	15.25	14.50	69	0 0
24	15.25	15.25	14.50	68	10 0
25	15.43 1/4	15.43 1/4	14.62 1/2	68	10 0
26	15.75	15.62 1/2	14.65	68	15 0
27	.....	.....	.....	.....	.....
28	.....	.....	.....	.....	.....
29	15.87	15.62 1/2	14.65	68	10 0
30	16.25	15.70	15.00	69	0 0
31	16.50	15.87 1/2	15.12 1/2	69	5 0
Highest	16.50	15.87 1/2	15.12 1/2	69	5 0
Lowest	14.62	14.50	14.00	63	0 0
Average	15.11	14.96	14.34 1/2	66	3 7

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37½	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	.....
May	12.32	16.27	15.73	14.44	.....
June	12.63	17.43	15.08	14.15	.....
July	12.72	17.37	14.77	13.73	.....
Aug.	12.70	17.61	15.79	12.68	.....
Sept.	12.57	17.69	16.72	12.44	.....
Oct.	12.47½	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av.	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	.....
May	12.13	16.16	15.63	14.13	.....
June	12.55	17.29	14.85	13.81	.....
July	12.62½	17.35	14.57	13.49	.....
Aug.	12.57½	17.60	15.68	12.41½	.....
Sept.	12.39	17.67	16.55	12.09	.....
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50½	14.47	12.93	.....
Av.	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of **Casting Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.33	14.18	.....
May	12.08	16.01	15.45½	14.00	.....
June	12.40	17.08	14.72	13.65	.....
July	12.49½	17.09	14.40½	13.34½	.....
Aug.	12.42	17.35	15.50	12.27	.....
Sept.	12.23	17.51	16.37½	12.00	.....
Oct.	12.21	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56½	17.34	14.22	12.83½	.....
Av.	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since January 1, 1914 are given in the following table together with the price of Lake copper on the same dates.

1914—	Sheet Copper, Lake Copper	
January 1	20.25	15.57½
February 2	20.00	15.12½
March 13	19.75	14.59
May 13	19.50	14.43¼
May 22	19.25	14.43¼
June 15	19.00	14.18¾
July 27	18.50	13.43¾
August 18	18.00	12.56½
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19 ...	17.00	12.25
November 23 ...	17.50	12.62½
December 1,	18.00	12.90
December 15 ...	18.50	13.50
1915—		
January 16	18.75	13.75
January 21	19.00	14.12½
January 25	19.50	14.37½
January 29	19.75	14.62½
March 22	20.25	15.12
March 25	20.50	15.41½
March 27	20.75	15.75

COMPOSITE METAL PRICES.

Computation for April 1, 1915.

2½ Spelter (St. Louis)	9.50	24.250
4 Lead (St. Louis)	4.12	16.500
3 Copper (Electro)	15.80	47.400
½ Tin (New York)	48.50	24.250
10 pounds		111.400

One pound 11.140

Monthly averages.

	1912.	1913.	1914.	1915.
January	9.778	10.987	9.105	8.836
February ...	9.677	10.260	9.294	9.878
March	9.886	10.024	9.026	10.377
April	10.277	10.198	8.844	.....
May	10.168	10.163	8.668	.....
June	11.014	9.648	8.431	.....
July	11.043	9.398	8.345	.....
August	11.092	10.025	9.111	.....
September ..	11.575	10.350	8.067	.....
October	11.596	10.029	7.500	.....
November ...	11.372	9.590	7.873	.....
December ...	11.219	9.053	8.400	.....
Year	10.750	9.977	8.555	.....

COPPER AND LEAD

sumption for the three months of 160,000,000 pounds. Total deliveries home and export for the first three months amount to 316,000,000 pounds. Taking the production for the same period at 25% less than the average production of the last six months of last year or say, 100,000,000 pounds each month, making a total production so far this year of 300,000,000 pounds and according to this basis the stocks of copper to-day must be nearly 178,000,000 pounds. Some producers tell us this estimate is about 100,000,000 million pounds out of the way. The only way to prove that statement is for the producers to publish monthly statistics again.

LEAD IN MARCH.

The market has been very strong throughout the month, with a good home demand and large export orders. Opening at 3.90c New York, the Trust made three advances, namely,

March 5 advanced .05c to 3.85c
 " 16 " .15c " 4.10c
 " 24 " .05c " 4.15c

at which the month closed. Second hands and independents have been steady holders at 2½c to 5c over the Trust official prices, expecting higher prices, which action has been justified by the results. The indications all point to continued heavy foreign demand and an improving market.

LEAD (Monthly Averages.)

—New York*— —St. Louis—

	1913.	1914.	1915.	1913.	1914.	1915.
Jan	4.35	4.11	3.74	4.20	3.99½	3.57
Feb.	4.35	4.06	3.82	4.20	3.95	3.72
Mar.	4.35	3.97	4.03	4.21	3.83	3.98
Apr.	4.40	3.82	....	4.25½	3.70	....
May	4.36	3.90	....	4.22	3.81	....
June	4.35	3.90	....	4.21	3.80	....
July	4.37	3.90	....	4.25	3.75	....
Aug.	4.63	3.90	....	4.56	3.73½	....
Sep.	4.75	3.86	....	4.62	3.67	....
Oct.	4.45	3.54	....	4.31	3.39	....
Nov.	4.34	3.68	....	4.18	3.58	....
Dec.	4.06	3.80	....	3.94	3.67	....
Av.	4.40	3.87	....	4.26	3.74	....

* Trust price.

WATERBURY COPPER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87½	14.50	17.00	14.75	14.12½
Feb.	12.75	14.50	15.50	15.12½	15.25
Mar.	12.50	15.00	15.12½	15.00	15.75
Apr.	12.50	16.00	15.75	14.87½	....
May	12.37½	16.37½	15.87½	14.75	....
June	12.62½	17.50	15.37½	14.37½	....
July	12.75	17.75	14.75	14.12½	....
Aug.	12.75	17.75	15.62½	13.00	....
Sep.	12.62½	17.87½	16.87½	12.87½	....
Oct.	12.50	17.75	16.87½	12.25	....
Nov.	12.87½	17.75	16.25	12.25	....
Dec.	13.87½	17.75	15.00	13.50	....
Av.	12.75	16.71	15.83	13.91	....

LEAD PRICES IN MARCH.

	New York.*	St. Louis.	London.
Day.	Cts.	Cts.	£ s d
1	3.90	3.82½	20 5 0
2	3.90	3.82½	20 3 9
3	3.90	3.85	20 3 9
4	3.90	3.85	20 3 9
5	3.95	3.87½	20 6 3
6	....	....	....
7	....	....	....
8	4.00	4.00	20 13 9
9	4.00	3.87½	20 16 3
10	4.00	3.90	20 17 6
11	4.00	3.90	21 0 0
12	4.00	3.90	21 7 6
13	....	....	....
14	....	....	....
15	4.00	3.87½	22 3 9
16	4.10	4.00	23 0 0
17	4.15	4.02½	23 0 0
18	4.15	4.05	23 2 6
19	4.15	4.05	22 12 6
20	....	....	....
21	....	....	....
22	4.15	4.05	22 17 6
23	4.15	4.05	23 2 6
24	4.17½	4.10	23 2 6
25	4.17½	4.10	23 2 6
26	4.17½	4.10	23 2 6
27	....	....	....
28	....	....	....
29	4.20	4.12½	23 2 6
30	4.20	4.12½	22 10 0
31	4.20	4.12½	22 10 0
Highest	4.20	4.12½	23 2 6
Lowest	3.90	3.82½	20 3 9
Average	4.066	3.981	21 17 8

* Outside market.

TIN.

TIN IN MARCH.

The month opened excited at 40½c for spot Straits, on fears that on account of congestion at the London docks, very great difficulties and delay would attend getting supplies to this country. As it turned out, not only were these fears justified, but the development proved as the month went on, still more serious. In five days the market was up 10c per pound to 50c, in the next week it reacted to 45c to be again 10c higher at 55c and again declining to 46c on the 21st, with the month closing at 51c. In many respects the excitement and strain was worse than that of last August when the war broke out, as instead of being confined to a few days it extended all through the month. Although there was plenty of tin awaiting shipment in London, the withdrawal of steamers to move Kitchener's army, and the congestion at the London docks, was responsible for only one day's supply of tin reaching America in the first 18 days of the month! Later, about 850 tons more came in, and by the creditable action of consumers who where possible not calling for tin due them for March, we managed to scrape through the month with no greater disturbance than the prices show, but that was bad enough and a record. The breaking down of a steamer from the East Indies that should have arrived in the early part of March made the situation still worse.

All during the month this extraordinary state of affairs was seen, namely, tin in London available at 6c to 10c per pound under the New York price, and no means of getting the metal here. There was hardly any trading in futures for delivery two to three months off, although for such delivery prices were 5c to 10c per pound under the spot scarcity price.

The nerves of the trade are exhausted, but the outlook is still very serious, because while the congestion in London has been relieved, and supplies are now coming forward, England has placed an embargo on tin shipments from her possessions, England and the Straits Settlements, and such shipments can only be made by securing special licenses, also the arrivals have to be consigned to the British Consul, only

to be released by him after receiving an agreement that the metal is not to be re-exported in any form, raw or in other commodities, to any country except England and France.

The prospects are that April will duplicate March in strain and fluctuations.

It is useless to discuss the statistical, or in fact, any phase of the situation, except the single one, i.e., how to obtain a supply for our requirements. That is the question which is giving the trade, importer, dealer, and consumer, strenuous days and wakeful nights.

TIN PRICES IN MARCH.

	New York.	— London —					
Day	Cents.	Prompts.			Futures.		
		£	s	d	£	s	d
1	40.25	183	0	0	161	10	0
2	40.50	184	0	0	162	0	0
3	42.00	178	0	0	160	0	0
4	44.50	181	10	0	162	0	0
5	50.00	184	0	0	162	10	0
6	.....	.....	.....	.....	.....	.....	.....
7	.....	.....	.....	.....	.....	.....	.....
8	50.00	190	0	0	166	0	0
9	48.50	190	0	0	165	10	0
10	45.00	188	0	0	164	10	0
11	45.00	189	0	0	165	10	0
12	49.00	189	10	0	167	10	0
13	.....	.....	.....	.....	.....	.....	.....
14	.....	.....	.....	.....	.....	.....	.....
15	51.00	190	0	0	166	10	0
16	52.00	188	0	0	168	10	0
17	52.50	190	0	0	170	15	0
18	53.50	187	0	0	173	10	0
19	55.00	178	0	0	167	0	0
20	.....	.....	.....	.....	.....	.....	.....
21	.....	.....	.....	.....	.....	.....	.....
22	53.50	171	10	0	166	10	0
23	52.00	173	0	0	167	0	0
24	49.00	168	10	0	165	0	0
25	46.00	162	10	0	161	10	0
26	48.00	165	15	0	164	0	0
27	.....	.....	.....	.....	.....	.....	.....
28	.....	.....	.....	.....	.....	.....	.....
29	54.00	170	0	0	166	10	0
30	53.00	172	10	0	168	15	0
31	51.25	171	0	0	168	10	0
Highest	55.00	190	0	0	173	10	0
Lowest	40.25	162	10	0	160	0	0
Average	48.934	180	3	3	165	13	11

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.					
	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	.....
May	15,938	14,345	13,710	17,862	.....
June	16,605	12,920	11,101	16,027	.....
July	16,707	13,346	12,063	14,167	.....
Aug.	16,619	11,285	11,261	14,452	.....
Sept.	16,672	13,245	12,943	14,613	.....
Oct.	14,161	10,735	11,557	10,894	.....
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Average	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	.....
May	4,965	4,310	5,760	6,160	6,900	.....
June	4,120	5,050	4,290	4,820	5,870	.....
July	5,040	4,660	4,580	4,770	4,975	.....
Aug.	5,700	4,680	5,210	6,030	3,315	.....
Sept.	4,220	5,150	5,430	5,160	4,973	.....
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	.....
May	3,600	3,400	4,250	3,750	3,800	.....
June	5,000	2,900	2,850	3,800	3,650	.....
July	3,800	4,300	5,150	3,900	3,900	.....
Aug.	3,700	3,800	4,300	3,600	2,900	.....
Sept.	3,300	4,200	3,600	3,100	3,600	.....
Oct.	3,350	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Mar. 1915.	Feb. 1915.	Mar. 1914.
Straits shipments	1915.	1915.	1914.
To Gr. Britain...	2,295	3,254	2,350
" Continent ..	1,120	625	1,040
" U. S.	1,553	1,705	755
Total from Straits	1,970	5,584	4,125
Australian shipments			
To G. Britain ..	200	377	150
" U. S.	nil	nil	nil
Total Australian.	200	377	150
Consumption			
London deliveries	2,754	3,578	1,401
Holland deliveries	*2,150	27	1,509
U. S.	3,200	3,375	4,450
Total	8,101	6,780	7,360
Stocks at close of month			
In London—			
Straits, Australian	3,317	1,721	3,604
Other kinds	2,123	272	2,483
In Holland	nil	nil	2,105
In U. S.	905	2,046	1,997
Total	6,345	4,039	10,189
Straits afloat, close of month			
To London	3,363	5,217	2,640
Banca and Billiton			
To London	649	1,927	183
Total London .	4,012	7,144	2,823
To United States			
Straits	3,780		
Banca	1,330		
Total U. S.	5,110	3,365	3,977
Grand total	9,122	10,509	6,800
	Mar. 31, 1915.	Feb. 28, 1915.	Mar. 31, 1914.
Total visible supply	15,467	14,548	16,989

* Includes 2,000 tons delivered from Netherlands Trading Society stock during Feb.

STRAITS TIN PRICES IN NEW YORK.

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.93
Apr.	42.20	44.02	49.12	36.10	.....
May	43.10	46.12	49.14	33.30	.....
June	46.16	47.77	44.93	30.65	.....
July	42.96	44.75	40.39	31.75	.....
Aug.	43.45	45.87	41.72	50.59½	.....
Sep.	39.98	49.18	42.47	32.79	.....
Oct.	41.21	50.11	40.50	30.39½	.....
Nov.	43.13	49.90	39.81	32.50	.....
Dec.	44.97	49.90	37.64	33.60	.....
Year	42.68	46.43	44.32	35.70	.....

ANTIMONY.

ANTIMONY IN MARCH.

The market has continued to advance, the record for March being 7c per pound on Cooksons, 6½c on Halletts and 3c on Chinese and Japanese. The month opened with the market very strong at

23c for Cooksons

21½c for Halletts

18½c for Chinese and Japanese

with every indication of going higher, as on account of embargo no antimony can be received from England, also a good inquiry from consumers for war orders, and no offers being made from the other sources of supply, China and Japan. In a few days the market became excited, and by the 10th inst., prices were up to 28c for Cooksons, 24c for Halletts and 21½c for Chinese and Japanese, with rumors of some large inquiries in the market from the Russian and Italian Governments. With no new supplies of Cooksons and Halletts available, and the small stock here being rapidly depleted, these brands advanced, and closed for the month at 30c for Cooksons, 28c for Halletts, and it is only a question of a short time when if the war continues, these brands will not be available in this market at any price, and all the requirements of the country will have to be supplied by Chinese and Japanese. Fortunately there is a fairly good stock of Chinese and Japanese, and we have had further arrivals during the month, and in consequence there has been no further advance in the closing two weeks, the month closing at 21½c.

There is no substitute for antimony and the uses to which it is put as an alloy, and the metal enters very largely into war munitions. With the prospect of the war continuing there is every indication that prices will continue to advance.

We give elsewhere tables showing the movement during the Russian-Japanese war, and also a chart showing the movement during the present war. It is true there has been a large increase in the output of Chinese and Japanese antimony in the East, but the present situation is much more acute than during the Russian-Japanese war, as at that time only two nations were calling for the metal for ammunition, and there was no embargo on the shipments

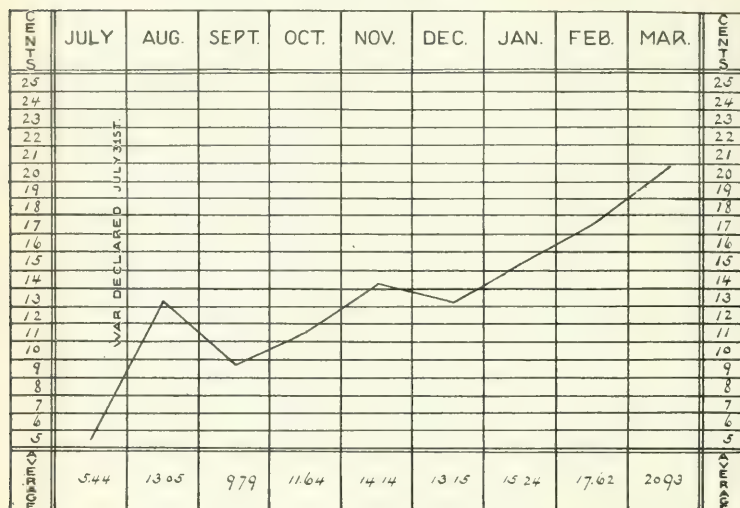
from Europe. There has not been the wild speculation this time in the metal such as marked the former period. Had this been in evidence the prices to-day would be very much higher than they are. The advance has been perfectly natural under the circumstances, has been based entirely on supply and demand, and we expect to see all records for high prices beaten in the next few months.

ANTIMONY PRICES IN MARCH.

Day.	Chinese and		
	Cooksons.	Halletts.	Japanese
	Cts.	Cts.	Cts.
1	23.00	21.25	18.50
2	23.00	21.25	18.75
3	23.00	21.25	18.75
4	25.25	22.00	20.00
5	26.00	23.00	20.00
6	.....	.....	.....
7	.....	.....	.....
8	27.00	24.00	20.50
9	27.00	24.00	21.00
10	28.00	24.00	21.50
11	28.00	24.00	21.50
12	28.00	24.00	21.50
13	.....	.....	.....
14	.....	.....	.....
15	28.00	24.00	21.50
16	28.00	24.00	21.50
17	28.00	24.00	21.50
18	29.00	25.00	21.50
19	29.00	25.00	21.50
20	.....	.....	.....
21	.....	.....	.....
22	30.00	25.00	21.50
23	30.00	25.00	21.50
24	30.00	25.00	21.50
25	30.00	25.00	21.50
26	30.00	25.00	21.50
27	.....	.....	.....
28	.....	.....	.....
29	30.00	26.00	21.50
30	30.00	26.00	21.50
31	30.00	28.00	21.50
Highest	30.00	28.00	21.50
Lowest	23.00	21.25	18.00
Average	27.837	24.119	20.045

ANTIMONY FLUCTUATIONS SINCE THE WAR.

Plotted according to the average monthly price of Chinese
and Japanese grades in New York
1914—1915



EFFECT OF THE RUSSO-JAPANESE WAR ON ANTIMONY.

We give below a comparison of Antimony prices (Chinese and Japanese grades) by months showing the prices ruling before, during and after the Russo-Japanese War. This war commenced on February 8, 1904 and lasted for about a year and a half, peace being declared on September 5, 1905. What is particularly interesting is that the **highest price of Antimony was not reached until eight months after peace was declared.** Thus in May, 1906, ordinary grades of Antimony sold as high as 26 $\frac{3}{4}$ c, the average price in this month being 25.58c per pound. From May, 1906, until April, 1907—nearly a year—the price fluctuated between 25c and 20c, then the market broke badly, and the average price for the month of July, 1907, was as low as 9.53c. The following tables show the average monthly prices from January, 1904 to March, 1913.

	1904.	1905.	1906.	1907.	1908.	1909.
January	5.91	7.81	13.92	23.79	8.25	7.57
February	6.20	7.51	14.72	23.62 $\frac{1}{2}$	8.24	7.27
March	6.37 $\frac{1}{2}$	7.48	15.85	22.68	7.85	7.11
April	6.37 $\frac{1}{2}$	8.28	20.34	20.70	8.07	7.23
May	6.37 $\frac{1}{2}$	8.74	25.58	17.59	8.05	7.24
June	6.09 $\frac{1}{2}$	10.56	24.51	13.37	7.94	7.14
July	6.05	12.93	22.88	9.53	7.65 $\frac{1}{2}$	7.14
August	6.02	13.71	22.13	8.81 $\frac{1}{2}$	7.55	7.55
September	6.02 $\frac{1}{2}$	12.79	22.29	9.28	7.44	7.52 $\frac{1}{2}$
October	6.25	11.72	23.92	10.01	7.50	7.46 $\frac{1}{2}$
November	8.50	11.50	24.32	8.67	7.46	7.53
December	8.63	13.17	23.96 $\frac{1}{2}$	8.04	7.65	7.50
Average	6.507	10.516	21.202	14.67 $\frac{1}{2}$	7.80	7.35

CHINESE AND JAPANESE ANTIMONY.

Average monthly prices of Chinese and Japanese Antimony in New York.

	1910.	1911.	1912.	1913.	1914.	1915.
January	7.50	7.15	6.89	8.11	6.03	15.24
February	7.44	7.53	6.78	8.16	6.00	17.62
March	7.33	8.75	6.78	7.91	5.94	20.93
April	7.31	8.34	6.87	7.82	5.82	
May	7.30	8.06	6.98	7.75	5.78	
June	7.30	7.38	7.07	7.62	5.62	
July	7.29	7.32	7.37	7.55	5.44	
August	7.25	7.22	7.58	7.48	13.05	
September	7.22	7.13	8.00	7.31	9.79	
October	7.15	6.94	9.11	6.46	11.64	
November	7.13	6.94	9.11	6.28	14.14	
December	7.03	6.97	9.05	6.05	13.15	
Average	7.27	7.48	7.63	7.43	8.53	

COOKSONS ANTIMONY.

Average monthly prices of Cooksons Antimony in New York.

	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January ...	8.69	14.84	25.74	9.31	8.11	8.50	8.13	7.59	9.66	7.31
February ..	8.30	15.68	25.48½	9.14	8.01	8.50	8.46	7.22	9.31	7.24
March	8.21	17.26	25.16	8.88	7.95	8.49	9.50	7.52	9.03	7.23
April	8.74	21.01	23.99	8.81	8.14	8.36	9.47	8.00	9.00	7.22
May	9.00	26.55	21.55	8.73	8.25	8.37½	9.48	8.00	8.77	7.29
June	11.68½	26.60	16.83½	8.65½	8.26½	8.28	8.86	8.00	8.63	7.21
July	13.93	25.11	12.05	8.48	8.33	8.20½	8.50	8.26	8.47	7.11
August ...	16.32	24.85	10.98	8.25	8.55	8.17½	8.44½	8.51	8.38	16.23
September.	14.08	25.10	10.48	8.09	8.53	8.18	8.27	8.84	8.30½	12.19
October ...	12.99	25.48	11.78	8.10	8.40	8.15	8.08	10.22	7.66	13.87
November.	13.16	25.96	10.78	8.21	8.37	8.02	7.94	10.31	7.52	17.26
December ..	13.88	25.75	9.60	8.12½	8.37½	7.64	7.81	10.06	7.45	15.82
Average ..	11.58	22.85	17.03½	8.56½	8.27	8.24	8.58	8.54	8.52	10.50

HALLETT'S ANTIMONY.

Average monthly prices of Hallett's Antimony in New York.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	24.52	8.92	8.04	8.26	7.62½	7.61	9.18½	7.02
February	24.21	8.93	7.86	8.27	8.01	7.41	9.00	7.00
March	23.24	8.76	7.74½	8.25	9.20	7.49	8.66	6.95
April	20.88	8.64½	7.79	8.18	8.97	7.75	8.35	6.90
May	17.83	8.73	7.75	8.13	9.01	7.75	8.23	6.89½
June	13.98	8.50	7.79	8.04	8.49	7.75	8.11	6.85
July	11.01	8.09	7.79	7.96	8.04	7.79	8.05	6.79
August	9.91	7.95	8.25	7.87½	7.77½	7.87	7.93	14.00
September	9.89	7.88	8.31	7.84	7.76	8.31	7.75½	11.10
October	10.62	7.94	8.15	7.80	7.69	9.48	7.31	12.78½
November	9.76	8.00	8.12½	7.74	7.70	9.64	7.20	15.84
December	8.80	8.13½	8.20	7.65	7.70	9.40	7.06	14.74
Average	15.39	8.37	7.98	8.00	8.16	8.10	8.07½	9.82

ANTIMONY ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons anti-
mony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	.....
May	9.48	8.00	8.77	7.29	.....
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av..	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Halletts anti-
mony in New York.

	1911	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	.....
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av..	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY

Average monthly price of Chinese and
Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93
Apr.	8.34	6.87	7.82	5.82	.....
May	8.06	6.98	7.75	5.78	.....
June	7.38	7.07	7.62	5.62½	.....
July	7.32	7.37	7.55	5.44	.....
Aug.	7.22	7.58	7.48	13.05	.....
Sep.	7.13	8.00	7.31	9.79½	.....
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Av..	7.48	7.63	7.43	8.53½	.....

ALUMINUM and SILVER PRICES IN MARCH.

Aluminum. — Silver —
New York. New York. London.

Day.	Cents.	Cents.	Pence.
1	19 12½	49½	23½
2	19 12½	49	23½
3	19 12½	49½	23½
4	19 12½	49½	23½
5	19 12½	49½	23½
6	19 12½	49½	23½
7	19 12½	50½	23½
8	19 12½	50	23½
9	19 12½	50	23½
10	19 12½	51	24½
11	19 12½	51½	24½
12	19 12½	51½	24½
13	19 12½	51½	24½
14	19 12½	51½	24½
15	19.00	51½	24½
16	19.00	51½	24½
17	19.00	50½	23½
18	18.75	50½	23½
19	18.75	50½	23½
20	18.75	50½	23½
21	18.75	50½	23½
22	18.75	50½	23½
23	18.75	50½	23½
24	18.75	50½	23½
25	18.75	50½	23½
26	18.75	50½	23½
27	18.75	49½	23½
28	18.75	49½	23½
29	18.75	50½	23½
30	18.75	50½	23½
31	18.75	49½	23½
Highest	19.25	51½	24½
Lowest	18.75	49	23½
Average	18.946	50.24	23.708

ALUMINUM and SILVER PRICES.

	New York					
	—Aluminum—			—Silver—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.93	57.56	48.89½
Feb.	26.20	18.80½	19.20	61.64	57.50½	48.48
Mar.	26.72	18.30	18.95	57.87	58.07	50.24
Apr.	26.91	18.08	.....	59.49	58.52	.....
May	25.95	17.93	.....	60.36	58.18	.....
June	24.79	17.82	.....	58.99	56.47	.....
July	23.34	17.59	.....	58.72	54.68	.....
Aug.	22.73	20.38	.....	59.29	54.34	.....
Sep.	22.00	19.28½	.....	60.64	53.29	.....
Oct.	20.32	18.25	.....	60.79	50.65	.....
Nov.	19.49	18.83	.....	58.99	49.10	.....
Dec.	18.85	19.02	.....	57.76	49.38	.....
Av.	23.63	18.59½	.....	59.79½	54.81	.....

SPELTER.

SPELTER IN MARCH.

The month opened unsettled, and spot and early deliveries were difficult to obtain at 10½c f.o.b. East St. Louis, the situation getting tighter until 11c had to be paid to get any prompt shipment metal.

About March 9th the market began to show signs of weakness for futures, although the spot market continued strained, and on the following day was completely demoralized on what seemed to be an effort not to make sales, but to smash prices, the movement being directed against future deliveries, and for a few days May and June delivery were offering at 8c and spot at 9½c to 9c. Consumers then came in as buyers, and the manipulation to force prices down seemed to retreat. By March 19th the spot market was back to 10c and futures at 8½c to 8¼c. But it was short-lived and again the market was attacked, apparently by some producers anxious to make a low ore basis for their future requirements, and again June was being offered at 7¾c, and spot at 9½c to 9¾c, at which basis the month closed. There are strong indications that a firmer market is likely again to rule and that the future will continue to be strenuous and very unsettled.

The effect of the present prices and fluctuations has been demoralizing to the consuming trade, and the damage done will some day have to be reckoned with.

We give elsewhere the Government's report, just issued, on the output and consumption, etc., during 1914.

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913	1914.	1915.
Jan.	5.77	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.70	11.85
Mar.	6.01	7.17	6.56	5.59	12.15
Apr.	5.85	7.07	6.08	5.50	....
May	5.76	7.13	5.77	5.38	....
June	5.89	7.25	5.50	5.37	....
July	6.11	7.46	5.61	5.26	....
Aug.	6.29	7.34	5.99	5.66	....
Sep.	6.29	7.72	6.13	5.91	....
Oct.	6.49	7.83	5.74	5.23	....
Nov.	6.90	7.74	5.60	5.38	....
Dec.	6.81	7.65	5.44	5.90	....
Av..	6.16	7.33	6.06½	5.53½	....

SPELTER PRICES IN MARCH.

Day	New York. Cts	St. Louis. Cts.	London. £ s d
1	10.50	10.25	43 0 0
2	10.75	10.50	43 0 0
3	11.00	10.50	43 0 0
4	11.25	11.00	43 15 0
5	11.25	11.00	44 10 0
6	....	....	....
7	....	....	....
8	11.25	11.00	44 10 0
9	11.25	11.00	44 10 0
10	10.50	10.00	44 10 0
11	9.50	9.00	44 10 0
12	9.50	8.87½	44 10 0
13	....	....	....
14	....	....	....
15	9.50	9.00	44 10 0
16	9.62½	9.12½	44 10 0
17	9.75	9.37½	44 10 0
18	10.00	9.75	44 5 0
19	10.12½	9.87½	44 5 0
20	....	....	....
21	....	....	....
22	9.75	9.62½	44 5 0
23	9.62½	9.50	43 15 0
24	9.50	9.25	44 0 0
25	9.50	9.25	44 10 0
26	9.75	9.50	44 10 0
27	....	....	....
28	....	....	....
29	9.75	9.37	44 10 0
30	9.62½	9.25	44 0 0
31	9.62½	9.37	44 0 0
Highest ..	11.25	11.00	44 10 0
Lowest ..	9.50	8.87½	43 0 0
Average ..	10.125	9.759	44 2 9

SPELTER (Monthly Averages.)

	New York			St. Louis		
	1913	1914	1915	1913.	1914.	1915
Jan.	7.23	5.33	6.52	7.04	5.14	6.55
Feb.	6.49	5.46	8.86	6.25	5.27	8.61
Mar.	6.29	5.35	10.12½	6.08	5.15	9.80
Apr.	5.79	5.22	....	5.59	5.03	....
May	5.51	5.16	....	5.31	4.96	....
June	5.23½	5.12	....	5.05	4.93	....
July	5.41	5.03	....	5.23	4.84	....
Aug.	5.80	5.63	....	5.64	5.45	....
Sep.	5.83	5.52	....	5.65	5.33	....
Oct.	5.47	4.99½	....	5.27	4.81	....
Nov.	5.34	5.15	....	5.15	4.97	....
Dec.	5.22	5.67	....	5.03	5.49	....
Av.	5.80	5.30	....	5.61	5.11½	....

GOVERNMENT SVELTER STATISTICS FOR 1914.

Figures of U. S. Geological Survey Just Published Show Large Gain in the Production—Total Svelter Available for Consumption Greatest in History, but Stocks at End of Year Relatively Small.

The report reads as follows:

THE STATISTICAL POSITION OF SVELTER.

The unprecedented and spectacular rise in the price of svelter in January and February of 1915 has caused the statistical position of svelter to be examined as never before. The large stocks at smelters at the beginning of 1914, the much larger stocks at smelters at the midyear, and the great demands for zinc for export for war purposes have served to augment the deep interest in this metal.

The production of primary svelter made a substantial gain in 1914, and this, taken in conjunction with the large stocks, made available a far greater supply of primary svelter than ever before. Although the production of secondary svelter fell off markedly, nevertheless the total svelter available for consumption was the greatest in the history of the industry. Only the enormous exports of svelter for use in the war prevented a great increase in stocks. As it was, stocks were greatly reduced from the quantities in hand at the first of the year and the midyear, and at the close of the year were only moderately large. The apparent consumption of primary svelter was slightly larger than in 1913, and seems a reasonable figure.

The relatively small stocks at the close of 1914, in the face of the very large quantities of svelter available for consumption, might suggest that there were large "concealed" stocks of svelter in the hands of consumers and brokers. In 1912 the quantity of svelter available for consumption was very great, yet at the close of the year there were smaller stocks than for many years. Later events showed that on the strength of the rising market during the year large stocks had been laid in by consumers and others, which are not taken into account in the statistics. In 1913 there was again a large quantity available for consumption, but owing to declining prices of svelter the concealed stocks in consumers' hands satisfied the demands of the market, and at the smelters the large

stocks accumulated which are shown in the statistics for that year. It will be observed, however, that large concealed stocks must necessarily be accompanied by an abnormally large apparent consumption. The apparent consumption for 1914, as shown by the figures on next page is not abnormally large.

However, if it could be shown that the svelter-consuming industries were at a low ebb and probably absorbed only a small fraction of their normal consumption, then it would appear probable that the apparent consumption given above, though not over large, might represent a considerable quantity which had been withdrawn from the market for speculative purposes. It has been claimed that the brass industry ran on a 60 per cent basis during the latter part of 1914, and at the same time the iron and steel industry (including galvanized products) was on a 50 per cent basis. These figures seem too pessimistic. Responses from a limited number of representative and important interests indicate that the consumption of svelter in galvanizing in 1914 was about 90 per cent what it was in 1913, and that the consumption of svelter in brass making was about 88 per cent that of 1913. These two industries probably account for about 80 per cent of the svelter consumption of the United States. If the considerable decrease in the quantity of secondary svelter recovered in 1914 be borne in mind, it does not seem probable that there can be any large quantity of concealed svelter stocks in existence. A consideration of the total apparent consumption of svelter for a period of years leads to the same conclusion.

To estimate the total apparent consumption of svelter in the United States, the production of secondary svelter, both redistilled and remelted, should be taken into account. The stocks of secondary svelter are not available, so that consumption of secondary svelter must be assumed to be the same as the production, which must be very nearly the fact, for the reason that secondary smelting interests are generally

Total Consumption of Spelter, 1909-1914.

	Apparent consumption of primary spelter.	Production of secondary spelter.	Approximate total spelter consumption.	Estimated normal total consumption of spelter
1909	270,730	33,040	303,770	285,000
1910	245,884	41,223	287,107	304,000
1911	280,059	40,513	320,572	322,500
1912	340,341	52,251	392,592	341,000
1913	295,370	50,015	345,385	360,000
1914	299,130	42,615	341,745	378,500
Total			1,990,876	1,991,000
Average			331,813	

small. The annual figures of apparent consumption of primary spelter and of the production of secondary spelter are given above. The figures for 1907 and 1908 are not used, because the figures of production of secondary spelter for those years are possibly not complete. If used they would apparently result in a somewhat lower average consumption and indicate a somewhat larger annual increase.

From the figures of approximate total consumption for 1909-1914 given above we make an estimate of the normal consumption of spelter for those years and the annual normal increase. The average yearly approximate consumption for the period is 331,813 tons. The consumption for 1912-1914 is about 84,000 tons in excess of the average for the whole period, and the consumption for 1909-1911 is about 84,000 tons less than the average. From these facts we may readily determine the normal annual increase and can then estimate the normal consumption of spelter, both primary and secondary, as given in the last column of the table above. The normal or prospective consumption of spelter for 1914 is seen to be 37,000 tons greater than the indicated actual consumption, from which it is to be inferred that large concealed stocks of spelter at the close of 1914 are not probable.

If spelter-consuming industries in the United States enjoy prosperous conditions in 1915, so that the total spelter consumption makes its normal gain (which, however, in view of the high price of spelter and the resulting effect on domestic consumption, is scarcely probable), figured on the totals for the last six years, as shown in the last column of the table above, the total domestic spelter consumption for 1915 would approximate 397,000 tons. If to this we add a year's domestic exports at the rate shown since the beginning of the war in Europe, 180,000 tons, and a year's for-

ign exports at the rate during the latter half of 1914, equal to 17,000 tons, we get 594,000 tons as the possible demand for spelter. This, however, is not the maximum possible quantity to be demanded. Attention was directed by the United States Geological Survey in a press bulletin, in August, 1914, to the opportunity for the American zinc industry to supply the major part of 222,000 tons of export spelter a year as long as the war lasts. As pointed out above, exports of spelter for seven months have been made at the rate of 197,000 tons yearly. Moreover, there remains the possibility of the trade in galvanized sheets, wire, and products with the southern continents and Asia. So far this has not been touched. The exports of galvanized sheets in 1914 were 45,318 short tons, compared with 86,475 tons in 1913. The exports of barbed wire, plain and galvanized, were 105,078 tons, as compared with 107,586 tons in 1912. When the United States comes into its share of the trade in galvanized products with the southern continents and Asia, the domestic consumption of spelter will be increased and will in turn increase the total possible demand for zinc given as 594,000 tons above.

On consideration, the domestic smelting capacity seems scarcely more than equal to this possible demand. The total number of ordinary retorts completed and contemplated at the close of 1914 is 124,016. Some of those contemplated can not be completed before the latter part of the present year. If we estimate the average capacity per retort as 4½ tons of spelter per year, the capacity of 124,016 ordinary retorts together with the large retorts listed is approximately 535,000 tons. Add to this 20,000 tons of stocks on hand and 30,000 tons of remelted spelter, we get 585,000 tons. If we take into account that the maximum smelter capacity indicated above can not be reached until the latter part of the

year, and consider the possibility of increased demand for galvanized products, it seems very improbable that there will be any surplus smelter capacity or accumulation of spelter stocks during the year. Apparently a continued decline in prices can come about only by a slackening in the foreign demand for spelter for war purposes.

It remains to consider whether the zinc resources of the United States together with the contiguous countries usually drawn upon will be equal to the possible demands of the immediate future. The total recoverable zinc available for spelter and the production of primary spelter for 1907-1914 are given in the following table:

Zinc Available for Spelter in the United States, 1907-1914, in short tons.

	Recoverable zinc content of domestic ore.	Recovered zinc content of imported ore.	Total recoverable zinc content of ore available in United States.	Zinc content of shipments made from ore.	Total recoverable zinc available for spelter.	Primary spelter production.
1907	259,951	229,544	289,495	56,931	232,564	249,860
1908	234,526	20,399	254,925	48,004	206,921	210,424
1909	305,423	26,715	332,138	54,139	277,999	255,760
1910	327,712	19,492	347,204	50,660	296,544	269,184
1911	345,260	17,619	362,879	46,376	316,503	286,526
1912	378,816	16,498	395,314	62,876	332,438	338,806
1913	418,832	9,433	427,815	67,699	360,116	346,676
1914		9,729		69,871		

Total 2,023,085 1,957,236
Apparent unused surplus 65,849

Production of Primary Spelter in the United States, 1906-1914.

	ALLOCATED ACCORDING TO LOCALITY IN WHICH SMELTED.								
	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
Illinois	47,939	56,056	50,244	67,653	73,038	83,130	88,397	106,654	127,946
Kansas	129,504	134,108	99,298	103,299	105,697	98,413	101,104	74,106	44,510
Oklahoma ..		5,035	14,864	28,782	34,760	46,315	76,925	83,214	91,367
Other States ..	47,267	54,661	46,018	56,026	55,689	58,668	72,380	82,702	82,226
Total	224,770	249,860	210,424	255,760	269,184	286,526	338,806	346,676	353,049

Production of Secondary Zinc in the United States, 1907-1914.

Secondary spelter, re-distilled	7,050	7,159	9,273	12,784	14,043	26,064	25,991	620,545	
Secondary spelter, re-melted	11,791	9,811	23,767	28,439	26,470	26,187	24,014	622,070	
Recovered zinc in alloys, excluding old brass re-melted	1,417	665	1,181	2,709	3,223	3,912	3,743	63,800	

Primary spelter is made directly from ore, but secondary spelter is recovered from such sources as drosses, scrapings, and old metals.

Source: Bureau of Revision.

Consumption of Primary Spelter in the United States, 1907-1914.

Supply:	1907	1908	1909	1910	1911	1912	1913	1914	
Stock, Jan. 1—								First half.	Second half.
In bonded warehouses		2	6	39	31	—	48	—	—
At smelters	2,874	10,364	19,613	11,767	23,201	9,949	4,474	40,659	64,039
Production—									
From domestic ore	2,774	19,747	230,225	252,479	271,621	313,907	337,252	171,964	171,922
From foreign ore	26,115	19,675	25,535	16,705	14,905	14,899	9,424	3,562	6,069
Imports	1,778	881	9,454	1,960	609	11,115	6,100	506	374
Total available	28,467	39,667	284,836	282,350	310,367	359,000	357,298	216,223	242,404
Withdrawn:									
Exports, foreign from warehouse	9	8	334	4,758	11,276	6,886	6,027	167	5,413
Imports, foreign, under drawback	1,555	1,334	—	4,486	3,079	1,219	7,459	1,881	3,100
Exports, domestic	563	2,640	2,566	3,990	6,872	6,634	7,783	773	64,023
Stock, Dec. 31—									
In bonded warehouses	2	9	30	31	31	48	—	—	111
At smelters	19,664	19,613	11,767	23,201	9,949	4,474	40,659	64,039	19,984
Total withdrawn	28,493	33,694	14,106	36,466	30,308	18,661	61,928	66,860	92,637
Apparent consumption . .	28,467	214,167	270,730	245,884	80,059	340,341	295,370	149,363	149,767
								299,130	

Notes: Imports and exports of spelter are given under the heading "Consumption." The imports of spelter in 1909-1914 are as given in the December Summary of the Bureau of Foreign and Domestic Commerce except that for 1909-1912, inclusive, the quantities given therein have been diminished by the quantity of zinc dust imported since Aug. 6, 1909, for the reason that the imports of spelter and zinc dust were not separated in the Summary. The imports of spelter are also exclusive of sheet zinc. The stock in bonded warehouses does not include zinc ore in bond or the spelter made therefrom, such spelter being included in stock at smelters.

The average yearly increase in recoverable zinc content of domestic ore for the period 1907-1913, inclusive, is 26,405 tons. No figures are available for the zinc content of ores mined in 1914. Adding the average yearly increase for two years to the output of 1913 we get 471,192 tons as a normal estimate of the output of domestic mines for 1915. Adding 10,000 tons as probable imports in ore, and subtracting 70,000 tons as probable zinc content of pigments we get 411,000 tons as the probable zinc in ore available for spelter in 1915. To this should be added the 20,000 tons of spelter stocks on hand at the beginning of 1915, making 433,000 tons available. This is to be set off against a possible demand for 594,000 tons as pointed out above. It will be observed from the table above that the total recoverable zinc available for spelter for 1907-1913 was about 66,000 tons in excess of the actual production of spelter for the same period. This is to be accounted for as increased ore stocks at the large new smelters, oxide plants, and separation plants which have been built since 1907, and is in large part available for immediate consumption. Adding this to the 433,000 tons, we should have roughly 500,000 tons supply available for treatment in 1915. To this there is to be further added the production of secondary spelter, which reached 52,251 tons in 1912, and could no doubt be expanded to 60,000 tons or more if the occasion arises. So that if the United States is called upon in 1915 for the possible supply of 594,000 tons or even 600,000 tons of spelter, the zinc will be probably at hand without increasing the mine production above the normal, to furnish nearly 560,000 tons of it. The remainder would easily be supplied by increased production from Montana, Idaho, Colorado, New Jersey, Tennessee, and other States, under the stimulus of high prices. In the Joplin district alone much lean sheet-ground territory not recently operated would become productive under continued high prices, to say nothing of increased production from operating and new mines.

Zinc ore was imported from Mexico at the rate of less than 200 tons of zinc content per month for the first eight months of 1914. Conditions limiting the shipment of zinc ore from that country have recently eased up somewhat and the imports for the period September, 1914, to including Feb-

ruary, 1915, have averaged 1,600 tons of zinc content, so that a larger supply than for the last two years is to be expected from that country. The available supply from Canada will no doubt be largely increased by the high prices.

In conclusion, it appears that spelter is in a highly advantageous position as far as the statistics afford evidence, and the only danger to be apprehended is that the prevalence of high prices may so limit the domestic consumption as to partly offset advantage gained from the increased foreign demand. The high price of galvanized sheets, for instance, has led some rolling mill operators to advise their customers to substitute heavier black sheets coated with paint. It further appears that the zinc resources of the United States are amply able to satisfy any possible demand that is likely to be made upon them in the immediate future, without drawing upon the zinc tailing piles of Australia.

EXPORTS OF DOMESTIC SPELTER AND SHEETS, 1914-15.

1914	Pounds	Value
January	459,703	\$25,827
February	35,550	3,233
March	292,094	18,471
April	120,149	7,939
May	214,201	13,618
June	425,210	31,569
July	313,166	16,315
August	6,896,504	479,253
September	38,090,144	2,479,442
October	20,517,926	1,484,686
November	25,493,697	1,657,372
December	36,642,727	2,322,943
1915.		
January	30,597,854	1,927,941
February	29,203,018	2,073,315

EXPLANATORY NOTE.

The statistics of general imports, as published by the Bureau of Foreign and Domestic Commerce, are based on "consular invoice" or "declaration," which is a close approximation only to actual weights and values. The true weights and values of all dutiable articles are determined when the duties are paid, and the correction is applied as "addition by liquidation" or "deduction by liquidation." On free articles this correction is not made. Prior to 1909 zinc ore was in large part undutiable, and in that part of 1909 prior to August 6 a portion of the imports on zinc ore was free. The quantities added or deducted by

the liquidation changes are known, and if applied to the consular invoice figures should theoretically give the true figures of imports, and this correction has been made in preceding reports. It has been ascertained, however, that for one customs district the returns, under special instructions, are made in such form that the use of the liquidation corrections involves a considerable duplication. For this reason no correction of the consular invoice has been attempted in the present statement. The figures are exclusive of 10,431 tons of other ore imported in 1910, which carried 2,645,111 pounds of zinc as an accessory constituent, of 25,769 tons in 1911 carrying 6,283,437 pounds of zinc, and of 18,245 tons in 1912 carrying 4,862,508 pounds of zinc, an average of about 13 per cent., which is not recoverable, and hence, for the purpose of this report, not to be classed with zinc-ore imports. Such ores have entered free since 1913 and are not enumerated.

The figures of spelter production in this report do not include the zinc content of

zinc pigments produced during the year, except such as are made from spelter by the French process.

The figures given in the foregoing tables are based on confidential reports by each zinc-smelting company in operation in the United States. The totals of production in foreign countries are taken from the annual statement by Henry R. Merton & Co., of London. The figures of imports and exports are taken from records of the Bureau of Foreign and Domestic Commerce of the Department of Commerce, recalculated to short tons, and those for 1914, not having been finally checked, are subject to minor revision. This statement is designed to afford at the earliest practicable date authentic figures of the production of spelter in the United States in 1914. If co-operation of the zinc-smelting companies had been complete this statement could have appeared at an earlier date.

C. E. Siebenthal.

Washington, D. C., March 25, 1915.

REVIEW OF THE JOPLIN ORE MARKETS.

The condition of the zinc ore market for the month of March was probably the most unsatisfactory ever recorded in the Joplin district. The month was one of extremely unsettled conditions, the demand was very poor for zinc ore, buyers buying very small tonnages each week, frequently purchasing no ore until late Saturday afternoon, this method of buying greatly disturbed the producers who did not know what to expect with regard to price, especially those who have to sell their ore each week. March 1st zinc blende ore was higher than ever recorded covering a base range of \$67 to \$75 for first and second grade ore, this high price for zinc ore only covered a period of two weeks, the last part of February and the first part of March when the price of ore commenced to go downward, declining steadily with a base range of \$55 to \$60 being recorded at the end of the month. The continued decline in the price of zinc ore in face of the continued high price of spelter, shows very clearly that the price of zinc ore for the month of March was manipulated by the smelters, demonstrating to the producer that the price of zinc ore is controlled absolutely by the buyers

and not figured on the basis of supply and demand as recorded in the spelter market. The total sales of zinc blende ore for the month were 18,655 tons or 4,697 tons less than was shipped in February, an average tonnage of 3,731 tons being shipped each week or a decrease of 2,102 tons per week. The total tonnage sold for the year was 59,041 tons or 5,779 tons less than shipped covering the same period in 1914 when the average price for ore was \$38.89 per ton, while the average price for 1915 is \$59.73 per ton, or an increase of \$20.84 per ton over that paid last year covering the same period.

The Calamine ore market for the month was strong, the buyers of this ore were anxious to secure all that was available. The average price at the beginning of the month was \$35.98, with the highest base price being \$47, the end of the month recorded a slight increase in the average price which was \$38.24 per ton, the market covered a base range the last week of the month of \$30 to \$36 per ton. The total tonnage shipped for the month was 2,160 tons, an average by weeks of 432 tons per week, the total tonnage for the year being 4,901 tons at an

average price of \$36.93 per ton. The sales of Calamine ore cover practically the total production for the month and year as the producer of calamine ore has no available means of keeping the ore, he is obliged to sell on the open market each week at the prices offered, preventing the accumulation of very much ore as surplus. The light production of this ore is the result of the bad weather conditions prevailing throughout the winter season, but with the coming of better weather conditions the production of calamine ore will undoubtedly be considerably increased.

The estimated surplus stocks of zinc blende ore in the bins of the producers is 17,145 tons against 9,785 tons for the month of February, an increase of 7,360 tons. This increase is the result of restricted buying of zinc ore for the month as production continued about normal, very few if any of the mining plants were shutdown on account of the unsettled condition of the ore market, the producers feeling that the decrease in the price of zinc ore and the smaller tonnage being purchased by the buyers was hardly justified in the face of the spelter market and are hopeful that the market will right itself in the near future on a basis that will permit them to go ahead with plans for the further developments of their properties. Generally the producers would be glad to see a normal market established at a base price around the \$50 mark, although it is generally understood by the

producers that the smelters can buy zinc ore in the Joplin district at any price which they are willing to pay and that the price of zinc ore is likely to decline to a very low level for this season more than any other. The producers are showing a willingness to support the proposed investigation of the alleged smelter trust.

The lead ore market at the beginning of the month was strong at a base price of \$47 to \$48 per ton, remaining in this condition without any variation in price until the middle of the month when the price jumped to \$50 per ton, staying at this figure throughout the remaining part of the month. The tonnage of lead ore shipped for the month was 3,582 tons at an average price of \$47.70 per ton. The average tonnage shipped per week was 716 tons, while the total tonnage shipped for the year was 9,419 tons at an average price of \$45.06 per ton. The month of March recorded an increase of 1,095 tons of ore shipped over the shipments for the previous month, the greater portion of this increase was shipped the last two weeks of the month because of the increased price offered, although producers generally are showing an inclination to hold their ore against a further rise in the market price and are steadily accumulating their ore. The estimated surplus stocks in the bins of the ore producers is 1,160 tons showing an increase of 130 tons over the surplus of the previous month.

RAILROAD EARNINGS.

Beginning July 1, 1914, a new system was established, whereby the railroads, instead of reporting figures and then reporting in addition the "net revenue from outside operation" (boat lines, electric lines, cabs, etc.) must include such revenue with total operating revenue. With the fresh figures as reported under the new system are given figures for the month a year earlier, compiled in the same manner, for comparative purposes, the compilation being made by the Bureau of Railway Economics. The Interstate Commerce Commission discontinued its monthly reports with that for August, 1914.

— 1913-14 ————— 1914-15 ————

	Revenue, Expenses, Net.			Revenue, Expenses, Net.		
July	\$1,182	\$837	\$346	\$1,124	\$785	\$339
August	1,244	856	388	1,175	789	386
September	1,257	854	403	1,182	781	401
October	1,314	891	423	1,169	786	383
November	1,180	884	297	1,023	732	292
December	1,116	821	296	990	728	262

LIST OF ACTIVE ZINC SMELTERS IN THE U. S., SHOWING CAPACITY IN 1914, BY COMPANIES AND STATES.

From the U. S. Geological Survey Compiled March 1915.

(Includes plants working on ore alone, on ore and dross, and on drosses alone.)

Company and State.	Location.	Acid Plant	Retorts at close of 1914.	Addition of retorts contemplated in 1915.
Colorado.				
United States Zinc Co.	Pueblo		1,920	.....
Illinois.				
American Zinc Co., of Illinois	Hillsboro	A	4,000	.....
Collinsville Zinc Smelting Co. (a)	Collinsville		1,536	.....
Granby Mining & Smelting Co.	East St. Louis	A	.....	3,240
Hegeler Zinc Co.	Danville	A	1,800	1,800
Illinois Zinc Co.	Peru	A	4,640	.....
Matthiessen & Hegeler Zinc Co.	La Salle	A	5,256	912
Missouri Zinc Co.	Beckemeyer		192	.....
Mineral Point Zinc Co.	Depue	A	9,080	.....
National Zinc Co.	Springfield	Ab	3,200	.....
Robert Lanyon Zinc & Acid Co.	Hillsboro	A	1,840	.....
Sandoval Zinc Co.	Sandoval		996	.....
Total			32,540	5,952
Kansas.				
Altoona Zinc Smelting Co.(c)	Altoona		3,960	.....
American Zinc, Lead & Smelting Co.(c) ..	Caney		3,648	.....
Do (c)	Dearing		3,840	.....
Chanute Zinc Co.(a)	Chanute		1,280	.....
Edgar Zinc Co.	Cherryvale		4,800	.....
Granby Mining & Smelting Co.	Neodesha		2,560	.....
La Harpe Spelter Co.	La Harpe		1,856	.....
Pittsburgh Zinc Co.(a)	Pittsburg		910	.....
Prime Western Spelter Co.	Gas	Ad	4,768	.....
Total			27,532	.....
Missouri.				
Edgar Zinc Co.	St. Louis		1,100	.....
Oklahoma.				
Bartlesville Zinc Co.	Bartlesville		5,184	.....
Do	Collinsville		8,064	.....
Lanyon-Starr Smelting Co.	Bartlesville		3,456	.....
National Zinc Co.	do		4,260	.....
Tulsa Fuel & Manufacturing Co.	Collinsville		6,232	.....
Tulsa Spelter Co.	Sand Spring		2,400	1,600
Total			29,596	1,600
Pennsylvania.				
American Zinc & Chemical Co.	Langeloth	A	880	2,640
New Jersey Zinc Co. (of Pennsylvania) ..	Palmerton		5,760	.....
West Virginia.				
Clarksburg Zinc Co.	Clarksburg		6,640	2,640
Grasselli Chemical Co.	do	Ae	5,760	.....
Do	Meadowbrook	Ae	6,912	.....
Total			14,496	.....
Total for all States			113,824	10,192

PLANTS WITH SPECIAL RETORTS. (f)

Mohr, H. & Co.	Buffalo, N. Y.	12	.....
Trenton Smelting & Refining Co.	Trenton, N. J.	40	.....
Wm. Cramp & Sons Ship & Engr. Bldg. Co.	Philadelphia, Pa.	24	.....

(a) Idle in 1914; (b) The National Zinc Co. has zinc-roasting furnaces at Argentine, Kansas, where the sulphur gases are utilized in an acid plant, the roasted concentrates being shipped to the smelter at Springfield, Ill. (c) Practically idle in 1914. (d) The Prime Western Spelter Co. has roasting furnaces and an acid plant at Tiltonville, Ohio. (e) The Grasselli Chemical Co. operates acid plants in connection with its zinc-roasting furnaces at Grasselli, Ind., Cleveland, Canton, and Lockland (near Cincinnati), O., and Newcastle, Pa., the roasted zinc concentrates being shipped to the smelters at Clarksburg and Meadowbrook, W. Va. (f) Large graphite retorts yielding 600-800 lbs. of spelter per charge.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, MAY 1915

NO. 5.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,
C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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EXTRAORDINARY TIMES.

It has been demonstrated as we claimed months ago, that there is no economy during war. Economy must wait until hostilities are ended, and the process of repairing the ravages of war begins. That the enormous amount of money that is raised by the belligerents is not done anything with but showered into trade in the extraordinary purchases made necessary. That while the first effect of war is to benumb the mental and physical in business, and upset finances, it is unvariably followed by a state of acute mental and physical business activity, and expansion and the engendering of speculation.

This has been the history of the past nine months.

The viewpoint, however, from which the business situation and prospects must be studied, has changed very materially since our last review. Then we dwelt upon the prospects of what men would do as they observed the European war drawing to a close, a prospect that did not include any such likelihood such as our own country being involved. The developments of the past month require a considerable modification, not only as regards the duration of the war, but the serious prospect that Germany's latest exhibition of cold blooded murder in torpedoing the

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largest passenger steamer afloat and sending to death without warning 1,500 or more non-combatants including over 100 Americans, has created a situation from which there seems no escape of our being involved in defence of humanity and defence of our citizens. We have been held neutral by our Government at Washington against a rising tide of horror and indignation. This barrier now promises to be swept away in the latest exhibition of German barbarity.

Instead of regarding as distinctly possible, if not probable, a termination of the war as a result of this summer's campaign, the majority of observers are not evidently committed to the view that the war will last longer and that we may become active participants. Nothing can possibly detract from the profound importance of the termination of the war when it comes, but if there is much work to be done first, the problems arising must first be considered. To these men must now address themselves.

But for the developments of the past few days it might be regarded as assured that large trade balances in favor of the United States would continue. In the past six months the balance has been in the neighborhood of \$800,000,000 or more, and estimates are made of one and a half to two billion dollars a year during the war. The thought of the past month has been that such balances spell prosperity, through one means or another, and thus business sentiment has been made much more hopeful. The manner in which balances would be settled might not be of paramount importance at present, but when the war is over our position would be determined by what has been done. If

we had a speculative boom the balance will be settled by our buying, at high prices, our securities held abroad, and this will not so greatly benefit us. If on the other hand we study conditions and invest the balance abroad, we shall obtain profitable investments that will yield us good returns, and reduce for all the future the unseen balance that has been against us so largely.

Business and financial sentiment throughout the country has greatly improved in the past 30 days. The United States promised to be at least fairly prosperous during the war, and there would be no need to wait until the war is over for a loosening in funds. The path to commercial prosperity would be broad and plain were it not for the one danger of speculation. The stronger tone in Wall Street in the past couple months had reassured the country, and properly, but if we were to figure that every ten-point in Wall Street presages precisely just so much increased commercial prosperity for the United States we shall have a sad disillusionment, perhaps before the end of the war, but certainly not long after its close.

The increase in the supply of money has worked out properly. There has been much more money for the railroads than formerly, and their inquiries for material have greatly increased. The Pennsylvania has accomplished important financing. It has already bought steel for the manufacture of 2,500 cars at its Altoona shops, and is receiving bids from outside builders upon 14,000 cars, which may or may not be purchased. Other roads have entered the market, for a possible total of 15,000 or 20,000 cars.

During April copper advanced about 2½ cents per pound, spelter about 4½

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cents and antimony 6 to 10 cents. Tin declined, but had been at a fictitious level on account of the English embargo. Neither pig iron nor finished steel products advanced noticeably during April, but at the close of the month, and in the early days of May, there was a perceptible strengthening. The production of pig iron increased very slightly, while the production of steel was practically stationary, the explanation of the divergence being that increased demand from iron foundries caused the merchant furnaces to increase their output. In nearly all other industries there is decidedly increased activity. The problem of unemployment has been greatly lessened in importance, and in some quarters there is serious discussion whether in the event of there being demand upon the factories for their full output sufficient labor could be secured.

Even the outlook as to Federal affairs has greatly improved. Chairman Davies of the new Federal Trade Commission delivered on April 29th before the Industrial Club of Chicago an address of profound importance. The address was delivered clearly as that of the chairman of the commission and not as an individual. Mr. Davies plainly advocated the establishment of conditions whereby manufacturers would be permitted to combine in export trade, he urged that business men should come to the commission with all their troubles, and he stated in the plainest words: "The Federal Trade Commission knows no politics and has no aims or purposes other than those of seeking to be of constructive aid to business enterprise, both great and small." The Federal Trade Commission is in the making; practical men

know that more depends upon how the commissioners lay out their work than upon the law that authorizes the existence of the commission and gives power to it, and the address of the chairman is extremely encouraging.

With all the troubles and uncertainties business has had this would be enough good news from Washington for one month, but there is more. It is stated that sentiment is growing in the Democratic party for an upward revision of the tariff at the next session, not solely for the purpose of increasing revenue, but also with the distinct object of protecting the country against the rush of cheap European goods that would naturally be expected to follow the termination of the war.

It could therefore be said with confidence, that practically all conditions had greatly improved during the month, and that the business and financial outlook was extremely favorable.

Now, what is to be the outlook and outcome of the Lusitania incident? The event certainly does not promise an early end of the war, but rather its extension to include other countries, probably our own.

The business activity, prosperity and improvement in sentiment in the past few months in America has had a single basis—war orders and conditions caused by the war, consequently if war is to be prolonged, and its area is to be extended, we are facing an increase in the activities of the past few months. In those activities there is every reason to believe that the iron, steel and metal trade will play an even more prominent part than they have of late. We believe the exciting times we may be entering into will not be confined to our interest as citizens but will find their greatest demonstration in business.

EDITORIAL.

STEEL CORPORATION EARNINGS.

The Steel Corporation's report of earnings in the first quarter of the year furnished two surprises. Using the figures of earnings after deduction of subsidiary company bond interest, the January earnings were \$867,000 lower than those of December, when the common trade view was that January was the better month. Probably it is correct to assume that there were unusual expenses incident to the starting of idle departments, which had to be charged to the current operations.

The second surprise was the largeness of the March earnings, \$7,132,081, when the whole quarter showed only \$12,457,809, against \$10,935,635 in the December quarter.

Forecasts for the June quarter must, of course, be based upon the March showing. The April shipments were slightly larger than those of March and the prospects are at least as great that May and June will show as large tonnages as that they will show less. There is, moreover, more room for them to increase than to decrease. There are possibilities of heavier railroad buying and more structural work, while the character of the demand thus far experienced has been such that no great falling off seems possible in the near future.

As to prices realized upon shipments, there has been a progressive increase since January, not much, it is true, but still showing a trend in the right direction.

It seems conservative, therefore, when March earnings were \$7,132,081, to assume

that April earnings were not less than \$7,500,000, and that May and June earnings will show no decrease. If one assumes say \$500,000 for earnings in ore transportation in May and June the second quarter's total comes out at \$23,000,000, and it may easily prove to be \$25,000,000, the last named being a rate just sufficient to cover dividends on the common stock at the rate of 5%. It is unlikely, however, that dividends on the common stock will be resumed until some contributions have been made to surplus. In 1914 there were two dividends of 1 1/4% declared on the common stock, and one of 1 1/2%, the total of 3% absorbing \$15,249,075, while the year was closed with a deficit of \$16,971,984, or \$1,722,909 more than the common dividends paid. At the annual meeting, April 19th, Chairman Gary, in discussing earnings and the investment of surplus remarked: "We need, when business is good, about \$15,000,000 in cash. And we aim to keep about that amount on hand." The balance sheet of December 31, 1914, showed \$61,963,287 in cash. The cash may, of course, be increased by issuing bonds against new construction previously held against surplus but it would not be in keeping with the corporation's policy thus to augment its cash and then to diminish it by paying common dividends, and it is probably a fair assumption that the deficit of 1914 will be made up before common stock dividends are resumed, at least at a 5% rate.

THE CLAYTON AND SHERMAN LAWS.

Of course it will require years for the precise bearing of the Clayton law to be developed, but manufacturers have already come to realize that it modifies a part of the interpretation that has been placed upon the Sherman law, in that the Sherman law, prohibiting restraint of trade, places a stop in the direction of combination to advance prices, and gives no suggestion of any stop in the other direction, whereas the Clayton clearly in-

hibits selling at too low prices if those low prices are made for the purpose of ruining competitors. The Sherman law has been interpreted as commanding competition, without limiting the nature of the competition, while the Clayton bill prohibits certain forms of competition.

From this angle the Sherman and Clayton laws furnish opposed limits, and in the region where the Sherman law is si-

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lent the Clayton law is active.

The common view is that selling at less than cost is often to be interpreted as an effort to drive out competition and if the sales are made for that distinct purpose they are inhibited by the Clayton law. Usually the question is likely to arise that distinction should be made between the cost of the manufacturer making the sale and the cost of the manufacturer who loses the order. If A's cost and B's cost are the same, then for A to sell below that common cost is not the same thing as for A to sell at a price above his own cost but lower than B's cost. If the law be interpreted that the one is illegal and the other is not, then the law must permit A and B to know each other's costs, so that they may conduct their businesses legally.

As a matter of fact the Department of Justice has approved systems whereby manufacturers compare their costs. Such comparison does not need to involve any agreement as to prices, the distinction being very clear that an agreement refers to something that is to be done in the future, whereas a comparison of costs refers to something that has already occurred. The

one refers to intention, the other to experience.

So far as the rights of the public as consumers are concerned, it is of course obvious that selling goods below their cost of manufacture is no benefit. In the long run the community must pay the cost of manufacture, and if it does not pay in one instance it must pay some time. If a plant is put out of business somebody has paid for it. For such things to occur continuously is for the community to confiscate the property of individuals, which is not to be considered.

The way must be found therefore, between the Sherman and Clayton laws whereby sellers may not on the one hand restrain trade by artificially advancing prices beyond a level commensurate with the welfare of the public, and may not on the other hand indulge in such destructive competition as would injure the public. To this end facts as to cost of production must be brought out and it is probable that the future will see more and more interchange of information between competing manufacturers as to what their costs have been.

BUSINESS TRENDS.

THE STOCK MARKET.

Trading in stock for the month of April was 20,057,188 shares, as against 24,401,846 in January, 1910, and 24,362,892 in April, 1906, these months representing the last two high points reached in volume of stock transactions. During the month there were seven days on which sales exceeded 1,000,000 shares, the largest of these being 1,453,600 on the 19th. This was a record since September 27, 1911, the day the Government filed its suit for the dissolution of the United States Steel Corporation. More than 1,725,000 shares changed hands that day.

Bradstreet's Journal commenting on the stock market boom says in part as follows:

"The unexpected element in the stock market's advance has been the response of the outside public to the opportunities. It is the universal opinion in Wall Street that the buying of stocks by outsiders was on a larger scale than has been seen for some years. The public's participation in speculation since the panic of 1907 was very limited. Its renewal at this juncture is mainly responsible for the activity resulting in daily transactions at the Exchange of over 1,000,000 shares per day and the accompanying advances in all classes of stocks, both the so-called standard shares and the neglected specialties. The enormous buying power thus developed has carried quotations up faster and further than the conservative element in the Street considers desirable or safe. Indeed, there have been indications that a considerable section of the professional trading interest has combated the continuance of the rise during the present week, although such activity has resulted in a heavy increase in the outstanding short interest. The remarkable fluctuations in such a stock as Bethlehem Steel, which advanced some 50 points in a way suggestive of a corner, with further rapid variations in its quotations on a similar scale, has been one of the chief incidents. Yet the apparent insensibility of the market at large to this influence may be deemed a proof of the force of the public participation which is responsible for the course and character of the market."

APRIL PIG IRON PRODUCTION SHOWS INCREASE.

Pig iron production for April shows that steel companies increased their output by 2,800 tons a day and merchant furnaces by 1,200 tons a day, bringing the latter up to the highest point since July 1914. The total production in April was 2,116,494 tons, or 70,550 tons a day, against 2,063,834 tons in March or 66,575 tons a day. With 195 furnaces in blast May 1st, or four more than on April 1st, the active capacity was 71,385 tons a day, a gain of 1,300 tons a day.

The daily average production of coke and anthracite pig iron in the United States by months since January, 1912, is given as follows by the "Iron Age":

	1912.	1913.	1914.	1915.
January	66,384	90,172	60,808	51,659
February	72,442	92,369	67,453	59,813
March	77,591	89,147	75,738	66,575
April	79,181	91,759	75,665	70,550
April	79,181	91,759	75,665	.....
May	81,051	91,039	67,506	.....
June	81,358	87,619	63,916	.....
July	77,738	82,601	63,150	.....
August	81,046	82,057	64,363	.....
September ..	82,128	83,531	62,753	.....
October	86,722	82,133	57,316	.....
November ..	87,697	74,453	50,611	.....
December ..	89,766	63,987	48,896	.....

FEWER FAILURES IN APRIL.

There were 1,671 failures reported to "Bradstreet's Journal" during the month of April, a decrease of 11% from March, and the smallest number reported in any month since November, but an increase of 36% over April a year ago, and to this extent the largest number ever reported for the fourth month of the year. Liabilities, swelled by a few large suspensions, aggregated \$34,029,164, an increase of 12% over March, and almost double what they were in April a year ago.

In the following table will be found the failures since the beginning of 1915:

	No. of		
	failures.	Assets.	Liabilities.
1915.			
January	2,378	\$35,428,030	\$50,576,581
February	1,865	13,663,744	24,943,644
March	1,881	16,463,432	29,896,857
First quarter	6,124	65,555,206	105,417,082
April	1,671	20,965,394	34,029,164

BUSINESS TRENDS.

INCORPORATIONS IN APRIL EXCEEDINGLY SMALL.

Incorporations in April were disappointingly small. Papers filed in the Eastern States for companies with a capital of \$1,000,000 represented a total of only \$2,200,000. This is \$37,850,000 below the preceding month, and a decrease of \$103,985,000, as compared with April a year ago. The nearest approach to this poor showing was in October, 1914, when the total was \$35,487,500. The grand total of all companies incorporated with a capital of \$100,000 or over, covering all States, including those of the East, for the past month was \$77,466,000, against \$130,303,500 in March. The figures a year ago were \$186,752,000.

Following are the comparative figures of the Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the first four months of the past three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. . .	\$51,150,000	\$120,050,000	\$332,450,000
Feb. . .	53,950,000	51,575,000	191,500,000
Mar. . .	70,650,000	57,700,000	166,030,000
April . .	32,200,000	136,185,000	198,718,000
Total	\$207,350,000	\$365,510,000	\$888,698,000
May . . .		62,700,000	172,200,000
June . .		70,050,000	79,550,000
July . . .		68,700,000	83,650,000
Aug. . . .		50,600,000	63,500,000
Sept. . .		54,800,000	42,750,000
Oct.		35,487,500	70,856,300
Nov. . . .		81,650,000	77,800,000
Dec. . . .		105,450,000	55,250,000
Total		\$894,947,500	\$1,534,254,300

OUR FOREIGN TRADE.

Our foreign trade for March and three months compares as follows:

	1915.	1914.
Exports	\$299,000,563	\$187,499,234
Imports	158,040,216	182,555,304
Excess of exports	\$140,960,347	\$1,943,930
Three months ended March 31st		
	1915.	1914
Exports	\$866,689,745	\$505,185,982
Imports	405,311,924	485,343,003
Excess of exports	\$461,377,821	\$80,142,979

COMMODITY PRICES HIGHER.

War influences continue to play an important role in maintaining quotations at high levels, in some instances superinducing still higher figures than those heretofore prevailing. On the one hand the war has made for necessities demands upon the states, and on the other it has cut off or greatly curtailed shipments of certain commodities from over-sea countries. In the sequence of this play and interplay of commodity factors, high prices rule, the situation in this respect being but slightly affected by purely domestic conditions, which, if anything, tend to bear lightly on the purse of the ultimate consumer. In any event, the ebb and flow of price movements is responsible for an index number of \$977.53 as of April 1st, a number that is very close to the record established on August 15, 1914, almost directly after the outbreak of hostilities in Europe. At the same time it exhibits a rise of 1.6% over March 1st; it reflects an advance of 11% over April 1, 1914, when the price situation was one of relative ease, with every surface prospect of becoming still easier. The present index number is 5% higher than that set up on April 1, 1913, and it is 7% above the figures for the corresponding date in 1912.

BUILDING OPERATIONS.

Building returns for March give evidences of improvement in the eastern half of the country, but poor returns from the northwest and southwest and far west more than counterbalance the first mentioned gains, the result being a grand total of building expenditure below that of March a year ago; 134 cities' returns furnishing the basis for this report.

Reports to Bradstreet's Journal from 134 cities show a total of 24,073 permits granted in March, a decrease of 2% from March a year ago and a total estimated expenditure of \$66,073,518, a decrease of 12.3% from the same month a year ago. The really encouraging feature is that the decrease in the number of permits almost reaches the vanishing point in March, and the details of these returns show that the increases in permits are no longer confined to New England and the middle States, but are now to be found also in the middle West and South.

SOUTH AMERICAN TRADE AS AFFECTED BY THE EUROPEAN WAR.

Address of James A. Farrell, President of the United States Steel Corporation and Chairman of the National Foreign Trade Council, before the American Academy of Political and Social Science, Philadelphia, May 1st, 1915.

The commercial interdependence of modern nations became strikingly apparent when the first shock of the European war halted neutral commerce as abruptly as that of the belligerents. Although transportation and exchange was dislocated in every country of the globe, probably no other neutral nations were affected to so serious an extent as were the twenty Latin-American republics to the south of us. Not only were their business relations with the United Kingdom, France, Germany, Austria and Belgium subjected to an abnormal strain, but their commerce with each other and with the United States was interrupted and is only now beginning to resume encouraging proportions.

The completion of the Panama Canal and propaganda in favor of closer relations with our sister republics are partially responsible for the fact that the American public has developed a tendency to view world trade in terms of Latin-America, overlooking the fact that the total trade of the twenty republics with other nations and with each other is but six per cent. of the total foreign trade of the world, and that the Dominion of Canada normally buys more from us than the whole of Latin-America.

Those who, by reason of their interest in the greater consuming markets, may view this attitude of the American public with disappointment, should realize, however, that the study of the many conditions governing this trade and the tariffs and laws to which it is subject is rapidly acquainting the general public with valuable knowledge concerning foreign trade policy. It is needless to look beyond our Latin-American export trade for examples of the strength and weakness of our commercial intercourse with all nations.

In gauging the effect of the European war upon Central and South American trade and its future development, it should be remembered that European investment has been the chief factor in the growth of these nations. Such financial assistance

was essential to the development of their natural resources and the establishment of manufacturing industries.

At the beginning of the European war, more than five billion dollars of British capital had been invested in Latin-America; while investments of French capital were variously estimated at from four hundred million to one billion two hundred million dollars, and German investments at somewhat less. British investments were estimated to yield an average annual interest of over five per cent., or two hundred and fifty million dollars, more than two-thirds of the value of the United Kingdom's yearly imports of Latin-American products. In other words, the Latin-American natural products imported for the life and industry of the British Isles were largely paid for by earnings of British gold invested in securities of Latin-American governments and in the shares of enterprises in those countries, such as railroads, steamship lines, plantations, mines, manufacturing industries, nitrate fields, etc. Moreover, this British investment ensured preference for British exports, as a railroad financed in Great Britain was usually equipped with British materials and British mines were operated with British machinery, etc.

German investment was accompanied by still greater financial influence, as the German industrial system contemplated the importation of raw materials, their fabrication into a much greater volume of products than Germany herself could consume, necessitating a wide export market for the surplus. In accordance with the German policy, industry and finance were closely allied, various classes of manufacturers concentrated their resources, supported by the great German banks and upheld by a constructive governmental policy which molded diplomacy, education and national thought to the extension of Germany's influence in world trade, with the result that there was a steady advance in demand for German goods in Latin-America.

Each great German financial group was

represented in South America by banks which, in addition to conducting a general banking business for the commercial public, were indefatigable in their efforts to obtain a market for products of the mergers and co-operative foreign selling syndicates which the parent banks in Germany had helped to organize and finance.

This influence of financial Europe steadily gained in power in every republic from the Rio Grande to Cape Horn, but its effect was neutralized by American investment in such countries as Mexico and the chain of states extending to Panama and the West Indies. Large American holdings in mines and plantations, fruit trade investments, railroads, tramways, light and power plants and steamship lines, coupled with our greater familiarity with the markets, a fairly considerable American population, and the influence of travel and associations, have combined to create an equal opportunity for American goods in the countries north of Panama and in the Caribbean.

Our exports to Central America normally consist more largely of highly finished manufactures than those to any other part of the world. Cuba is the only American country under whose tariff we enjoy a large advantage. To the ten Central American and Caribbean republics and to Venezuela, Colombia and Peru we sold more merchandise last year than did all the rest of the world, which is sufficient proof of our ability to produce results when supported by helpful association and sound financial investment, in addition to our sound selling methods and high-quality products.

Further south, the influence in behalf of American export trade steadily diminishes, for the reason that our South American investments, except in mines in Peru, copper and iron-ore properties in Chile and packing plants in Argentina, are immaterial; so, also, is American population, while European immigration has been heavy. The importance to a nation of merchants residing in foreign countries cannot be overestimated. British and German merchants scattered throughout the world conducting business as importers of products of their native lands are vital factors in British and German overseas trade, while an American merchant in a foreign land is an exception.

Even before the outbreak of the war, the effect on Latin-American markets of cur-

tailed European investment, beginning with the second Balkan war, was marked. Dependent as new enterprises were upon the selling of securities on the British and Continental Bourses, prosperity in South America has long been dependent on the European money market, and all industry and most government finance showed distress a full year before the great European war began.

When hostilities were declared, the situation became the worst in their history, and moratoria were promptly declared in practically every country. Pending loan negotiations were halted, new construction was suspended, sterling exchange, the almost universal currency of Latin-American trade, soared to unprecedented heights, steamship communication was interrupted, and confidence was completely impaired. The demoralizing effect of the crisis upon the domestic, as well as the foreign business of the United States, is not yet forgotten; in Latin-America it was even more severe. Trade between the United States and South America came almost to a halt and, even after British control of the sea restored transportation, the credit situation and the facilities for collections prevented the resumption of normal business.

Those whose enthusiasm led them to believe that, with Germany out of the race for trade, the United States could immediately gain the export trade formerly enjoyed by that country, failed to consider the fact that Latin-American producing power had shrunk by reason of the curtailment of British investment and the loss of the German, Austrian and other customary European markets for their products. More thoughtful exporters realized that the mechanism of commerce must be restored before present business could be taken care of, leaving aside the question of a greater future trade. The disadvantage of the former custom of liquidating transactions in our trade with Latin-America at London in sterling bills of exchange was made apparent, and its excessive expense bred in exporters and importers the desire for the establishment of dollar exchange and direct settlements between this country and southern markets. In the furtherance of this desire, the Federal Reserve banking law is timely. Its authorization of National banks to deal in acceptances representing transactions in the export and import trade created in each of

the great export centers a discount market for this paper, with the result that bills drawn on oversea customers find ready sale when accepted by banks belonging to the Federal Reserve system, and the extension of credits has been greatly facilitated.

Immediately the war assumed its present gigantic proportions, it was plain that the producing power of Latin-America had dwindled to the value of its exportable products, and much depended, therefore, upon the state of crops, such as wheat in Argentina, coffee in Brazil, etc.

Fortunately, these crops were large and foodstuffs commanded unusually high prices in the European market with the result that, within the last three months, trade has quickened, confidence has been partially restored, and business is beginning to be conducted "as usual," except that all new construction is at a standstill and no extensive development is contemplated until the end of the war.

A notable effect of the war in our commercial relations with Latin-America has been the increasing re-exportation of characteristic Central and South American products. New York and other ports of the United States are now important distributing points for international commerce, as shown by the fact that exports of foreign merchandise for the eight months ending February, 1915, were valued at \$33,166,512, as against \$20,541,138 for the same period in the previous year. This gain was especially notable in the case of cacao, the re-exports of which increased more than five-fold, reaching, for the eight months ending with February, a total value of \$2,835,591. The re-exports of coffee leaped from \$968,530 to \$4,482,368. This was largely due to the closure of Hamburg and conditions prevailing in other European ports, formerly the centre of the world distributing trade. In comparison with these old-world centres, New York became the greatest open port. By reason of restrictions placed upon the export of rubber by the United Kingdom, to prevent its being used by the enemy, the importance of American ports for the distribution of India rubber greatly increased, the value of re-exports growing about 80%.

During the eight months ending February 28, 1915, our exports to all Latin-America and the West Indies were valued at \$159,-

742,863, as compared with \$212,227,558 for the corresponding period ending February 28, 1914, a decrease of 25%, while our world exports during the same period decreased 3½%. Our imports from the same countries, during the same period of the present fiscal year, amounted to \$316,374,763 against \$289,318,891, an increase of 9%, although our world imports decreased 13%. This comparison shows a trade balance of \$156,631,900 in favor of Latin-America and the West Indies, which will adequately answer the demand of those who are urging us to buy more freely from Latin-America, but even in normal times, the balance is in our neighbors' favor. Under the provisions of the Federal Reserve Law, we can reasonably look for largely increased sales of American products.

The reasons for this decrease in our exports were the practical suspension of commerce during the first few weeks of war and the acute depression which followed. This decrease was noticeable in shipments of all construction materials, such as iron and steel manufactures, lumber and cement, agricultural machinery and equipment, automobiles, railway cars, locomotives, sewing-machines and other highly finished manufactures, while exports of actual necessities occasionally increased, by reason of the lack of European competition. For instance, exports of coal, which, before the war, except to Central America, were not heavy, trebled to Argentina, and greatly increased to Brazil, while shipments of American paper, because of the need of replenishing stocks and the elimination of German competition, also grew in volume, while inquiries began to pour in for numerous small lines, thus increasing the diversification of our export trade. At the close of war, however, we will find it necessary to exert every effort to maintain this newly-won trade against the determined competition of Europe.

The increase in value of imports from Latin-America is largely due to higher prices of various products, combined with the fact that trade routes have been changed and New York has become more active as a distributing point, as shown in the case of cacao, some importers of the Ecuadorian, Brazilian and Dominican product looking to see it the greatest distributing point in the world. The use of cocoa and chocolate in

the ration of the modern army proved to be the salvation of Latin-American cacao growers.

The demand of the European belligerents for foodstuffs and supplies has saved the situation both in Latin-America and the United States. The development of Latin-America cannot proceed, however, without foreign capital. Citizens of the United Kingdom are forbidden, during the war, to invest in foreign enterprises, which eliminates England, France, Germany or Belgium, leaving the United States as the only great nation whose trade balance is increasing and whose gold is accumulating.

That American capital is educated to foreign investment is proven by the fact that its holdings in the Dominion of Canada are nearly seven hundred million dollars, exclusive of agriculture, and half a billion dollars in Mexico, Central America, Cuba, Haiti, Santo Domingo, Chile and Peru. Since the beginning of the war, thirty million dollars of short term Argentine treasury notes have been taken in the United States, one of the conditions of the issue being that the proceeds should remain in the United States as a credit against the Argentine purchases of American merchandise. This unusual condition illustrates the advantage of making loans to countries which can become large purchasers of our products.

British investors are retaining their Latin-American properties, which will prove more valuable than ever after the war, in view of their freedom from the heavy taxes which war imposes upon investments in the United Kingdom. How important a part British capital will play in the financing of Latin-America after the war remains to be seen, but the consensus of financial opinion seems to be that interest rates will materially increase, and the amount of this increase, as compared with the price of United States loans, will doubtless determine the question of who is to be the chief investor.

Of greater importance than the interest rate is the creation of a greater export market for American manufactures through railway and industrial loans. By reason of European investment, the area into which we can expect to send American exports is restricted. For instance, in view of the fact that railways promoted by

European capital are confining their purchases of materials to Europe, our only field for railway supplies and equipment has been the Government railways. When the output of American factories is increased by foreign investment, the investment becomes in reality domestic and its encouragement by the United States Government should naturally be expected. Upon this attitude will depend largely the future of American business enterprise abroad. With governmental support and intelligent cooperation between investors much can be accomplished, although some hesitancy on the part of capital may be encountered, owing to the deterrent effect of the Mexican revolution. However, the awakened interest of the entire American business public in the possibilities of Latin-American trade is a great assurance of future increase.

While the establishment of dollar exchange will not, perhaps, entirely replace confidence in sterling bills at the conclusion of war, a beginning has been made for American banking. Although much is said in favor of conducting business in accordance with the desires and standards of our Latin-American customers we should remember that this applies only to what is recognized by the world to be sound business practice. Arguments in favor of granting six, nine and twelve months' credit do not recognize the fact that extension of unusual credits was an important factor in the industrial depression preceding the war, Germany's eagerness for British trade having led many German firms to extend credits which deferred merchants' obligations several months beyond the time when they realized on the purchased goods. With this ready money at hand, the merchant frequently speculated in land, with the result that collapse of the land boom caused heavy losses and failure to pay at maturity of even these long credits.

British exporters frequently voluntarily suffered the loss of old and valued business in preference to extending excessive credits, and Americans with experience in Latin-American trade are of the opinion that the limit of credit should be sufficient only to cover the time required by a purchaser to realize on the goods bought, taking into consideration the harvesting and marketing of crops.

PRODUCTION OF COPPER IN THE UNITED STATES IN 1914.

Advance Statement by B. S. Butler of the United States Geological Survey.

SMELTER PRODUCTION.

The smelter production of primary copper in the United States in 1914 was 1,150,137,192 pounds, as compared with 1,224,484,098 pounds in 1913, a decrease of about 6.1%.

The total value of the 1914 output at an average price of 13.3 cents per lb. is \$152,968,246, as compared with \$189,795,035 for 1913.

In the following table the production for 1914 is apportioned to the States in which the copper was mined. The total is made up of fine copper contents of blister produced and of the smelter output of ingot and anode copper from Michigan. The production of 1913 is given for comparison.

Production of Copper in the United States in 1913 and 1914.

(Smelter output, in pounds fine.)

	1913.	1914.
Alaska	23,423,070	24,985,847
Arizona	404,278,809	382,449,922
California	32,492,265	29,784,173
Colorado	9,052,104	7,316,066
Idaho	8,711,490	5,875,295
Maryland		12,248
Michigan	155,715,286	158,009,748
Missouri	576,204	53,519
Montana	285,719,918	236,805,845
Nevada	85,209,536	60,122,904
New Mexico	50,196,881	64,204,703
North Carolina	180	19,712
Oklahoma	11	
Oregon	77,812	5,599
Pennsylvania	245,337	422,741
Phillippine Islands	22	
South Dakota	4,549	
Tennessee	19,489,654	18,661,112
Texas	39,008	34,272
Utah	148,057,450	160,589,660
Vermont	5,771	
Virginia	46,961	17,753
Washington	732,742	683,602
Wisconsin		10,098
Wyoming	362,235	17,982
Undistributed	46,803	55,581
	1,224,484,098	1,150,137,192

REFINED COPPER.

The total production of new refined copper in 1914 was 1,533,781,394 pounds, a decrease of 81,286,388 pounds from the 1913 output.

The production of electrolytic, lake, casting, and pig copper from primary sources and the production of secondary copper by the regular refining plants in 1913 and 1914 is shown in the following table:

Production of primary and secondary copper by the regular refining plants in 1913 and 1914.

(In pounds.)

	— 1914 —	
Primary:	Domestic.	Foreign.
Electrolytic ..	991,573,073	323,358,205
Lake	158,009,748	
Casting ..	21,506,325	
Pig	39,334,043	
Total primary	a1,210,423,189	a323,358,205
	1,533,781,394	
Secondary:		
Electrolytic ..	27,702,928	
Casting	4,224,052	
Total secondary	31,926,980	
Total output ..	1,565,708,374	
	— 1913 —	
Primary:	Domestic.	Foreign.
Electrolytic ..	1,022,497,601	378,243,869
Lake	155,715,286	
Casting	22,606,040	
Pig	36,004,986	
Total primary	a1,236,823,913	a378,243,869
	1,615,067,782	

Secondary:	
Electrolytic ..	14,862,577
Casting	22,360,182
Total secondary	37,222,759
Total output ..	1,652,290,541

a The distribution of refined copper of domestic and foreign origin is only approximate, as an accurate separation at this stage of manufacture is not possible.

The figures for lake copper include the Michigan copper that was electrolytically treated.

In addition to the secondary material treated by the regular refining companies, plants that treated secondary material ex-

clusively produced a total of 224,000,000 pounds of copper as copper and in brass and other alloys of copper, making a total production of 256,000,000 pounds from secondary sources. Of this total at least 80,000,000 pounds was produced by remelting clean scrap produced in the process of manufacture of copper and brass articles.

If the output of plants treating purely secondary material is added to the production of the regular refining companies, the contribution of domestic plants of the United States to the world's supply of copper for 1914 is found to be 1,790,000,000 pounds.

In addition to the output of metallic copper the regular refining companies produced bluestone with a copper content of 8,602,861 pounds.

STOCKS.

Returns from all producing companies show that the following stocks of electrolytic, lake, casting, and pig copper were on hand at the beginning and end of the year 1914:

Stocks of Refined Copper. Pounds.

January 1, 1914	90,385,402
January 1, 1915	173,640,501
Increase during 1914	83,255,099

In addition to the stocks of refined copper there were reported as at the smelters, in transit to the refineries, and at the refineries, blister copper and material in process of refining to the amount of 203,067,571 pounds on January 1, 1915, as compared with 247,789,811 pounds on January 1, 1914.

Consumption.

The apparent consumption of refined new copper in the United States in 1914 was about 711,268,000 pounds. In 1913 it was about 812,268,000 pounds. The method employed in determining the quantity of copper retained for domestic consumption is shown in the following table, which does not include stocks of copper held by consumers:

Apparent Domestic Consumption of Refined New Copper in 1913 and 1914.

(In pounds.)

Total refinery output of new copper	1913.	1914.
.....	1,615,067,782	1,553,781,394
Stock at beginning of year	105,497,683	90,385,402
Total available supply	1,720,565,465	1,634,166,796
Refined copper exported	3817,911,424	3,748,902,137

Stocks at end of year	90,385,402	173,640,501
Total withdrawn from supply	908,296,826	922,542,658
Apparent consump		

tion

812,268,000 711,624,158
a Exports of pigs, ingots, and bars reported by the Bureau of Foreign and Domestic Commerce.

If to the 711,624,158 pounds of new refined copper is added the 256,000,000 pounds of secondary copper and copper in alloys produced during the year, it is found that a total of about 968,000,000 pounds of new and old copper was available for domestic consumption.

NOTE.

A more comprehensive report on the copper industry in 1914 is in preparation and will later be published by the Geological Survey as a part of a general review of the industries of gold, silver, lead, zinc, and copper. The preliminary statement here presented is brought out in advance of the fuller report in answer to a demand for official figures at the earliest possible date.

A careful canvass of plants treating secondary material has been made by Mr. J. P. Dunlop.

The figures presented here are smelter and refinery figures and represent the actual recovery, in terms of blister and refined copper, respectively, from materials treated in 1914. These figures may not exactly correspond with those showing mine production during the same period, although the variation should not be great. The smelter production and the mine production, representing as they do different steps in the process of producing copper, should not be confused.

The statistics here given have not been available at an earlier date, although estimates of the smelter production were made January 2, 1915. So far as known at present, no revision of these statistics will be necessary, but any slight reapportionment that final analysis of the figures may require will be made in the complete report. Figures discovered in present statement, if reported at an early date, will be corrected in the later report.

Copies containing the complete report may be obtained as soon as published by addressing a request to the Director of the Geological Survey.

LAKE SUPERIOR IRON ORE PRICES.

Mesabi Freight Reduced.

The Lake Superior iron ore market for the season of 1915 is generally credited with having opened Monday, April 19, when it is understood sales of a couple lots of Mesabi non-Bessemer were concluded at \$2.85, Lake Erie dock, the same price as obtained in 1914. The ore trade thereupon adopted the view that prices on all descriptions of ore for 1915 should be the same as in 1914. A number of reservations of ore had been made, and these were thereupon turned into contracts, the total transactions in the fortnight following totaling 1,500,000 to 2,000,000 tons. The sales were largely by ore companies to merchant furnace companies in which they are interested. Transactions between totally distinct interests were relatively light. A few deals were made by which the ore producers took payment in pig iron.

On April 27 the Interstate Commerce Commission decided the case that had been up for years, the original proceeding, later abandoned, having been brought in December, 1908, relative to the freight rate on iron ore from the Mesabi range to upper lake docks, and ordered a reduction from 60 cents to 55 cents. For many years the rate had been 80 cents from the Mesabi range and 90 cents and \$1 from various points in the Vermillion range, but on November 30, 1911, the rates were reduced to a uniform one of 60 cents, by the action of the two Steel Corporation roads. The shippers had demanded all along a 40-cent rate from the Mesabi range. While nominally they receive from the commission only one-fourth of the reduction demanded the total reduction from the old rate is much larger. The new rate is to be effective June 15. The commission made no decision with respect to the Vermillion rate. As to the Cuyuna, it has been informally understood that the railroads would reduce it to whatever was ordered for the Mesabi range.

The Lake Superior ore interests do not intend to make any reduction in Mesabi ore prices, on Lake Erie dock, by reason of the five-cent reduction in the rail rate. The cost of carriage from the Mesabi range will be 55 cents rail freight, 40 cents

vessel freight and 10 cents Lake Erie dock charge, making \$1.05, so that base Mesabi non-Bessemer ore will net the shipper, at \$2.85 on dock, \$1.80 at mine.

The following table shows season prices on Lake Superior ore, and indicates the base guarantees.

		(On Lake Erie Dock).			
		—Old Range—		—Mesabi—	
		Bess.	Non-Bess.	Bess.	Non-Bess.
1885	.....	4.00	4.00		
1886	.....	5.00	4.50		
1887	.....	6.00	5.00		
1888	.....	4.75	4.00		
1889	.....	5.00	3.75		
1890	.....	6.00	4.50		
1891	.....	4.75	3.75		
1892	.....	4.50	3.75		
1893	.....	4.00	3.25		
1894	.....	2.75	2.00	2.50	1.75
1895	.....	2.90	2.25	2.25	1.90
1896	.....	4.00	2.60	3.25	2.40
1897	.....	2.65	2.25	2.10	1.80
1898	.....	2.75	1.80	2.15	1.70
1899	.....	2.80	2.00	2.25	1.90
1900	.....	5.50	4.15	4.40	4.00
1901	.....	4.25	2.85	2.75	2.35
1902	.....	4.25	3.00	3.00	2.60
1903	.....	4.50	3.60	4.00	3.20
1904	.....	3.00	2.60	2.75	2.35
1905	.....	3.75	3.20	3.50	3.00
1906	.....	4.25	3.70	4.00	3.50
1907	.....	5.00	4.20	4.75	4.00
1908	.....	4.50	3.70	4.25	3.50
1909	.....	4.50	3.70	4.25	3.50
1910	.....	5.00	4.20	4.75	4.00
1911	.....	4.50	3.70	4.25	3.50
1912	.....	3.75	3.00	3.50	2.85
1913	.....	4.40	3.60	4.15	3.40
1914	.....	3.75	3.00	3.50	2.85
1915	.....	3.75	3.00	3.50	2.85

Particularly 1894 to 1899 some grades sold at materially higher prices. Base ore content (natural state) 1906 and some previous years; Bessemer, 56.70; non-Bessemer, 52.80; 1907 and later: Bessemer, 55.00; non-Bessemer, 51.50.

The majority of Mesabi non-Bessemer ores run below the base guarantee of 51.50%, and thus take penalties for iron content instead of premiums. The unit price is determined by adding 60 cents

(an arbitrary to cover the average rail haul) to the price on Lake Erie dock, this being divided by the number of iron units in base ore. Between 50 and 53% the additions or deductions are on a straight unit basis, for non-Bessemer ores. Between 49 and 50% one and one-half times the unit variation is taken, and between

48 and 49% the variation is doubled, so that 48% ore takes a deduction of two units. Above 53% there are slight additions to the unit rate for determining premiums. In the case of Bessemer ores there are also phosphorus premiums and penalties, .045% phosphorus being the dividing line, with no premium or penalty.

IRON CONTENT OF LAKE SUPERIOR ORES.

The Lake Superior Iron Ore Association issues under date of April 29 its annual compilation of the average iron content of Lake Superior ores as shipped by ranges. The fresh compilation is for 1914, but corresponding figures are carried back to 1902.

Low grade, silicious and manganiferous ores are omitted, the compilation dealing with Bessemer and non-Bessemer ores. The table covering the total of Bessemer and non-Bessemer ores, all ranges, follows, the iron content being taken with ore in natural state as shipped, not dried:

Average Iron of Bessemer and non-Bessemer Ores.

Year	Tonnage Old Range	Average Iron (Natural)
1914.....	9,672,749	53.4684
1913.....	12,923,833	53.3422
1912.....	13,482,235	53.7116
1911.....	8,741,346	53.6164
1910.....	12,745,332	53.5219
1909.....	12,678,967	53.4921
1908.....	7,656,957	53.6255
1907.....	12,511,544	54.0103
1906.....	13,010,631	54.6248
1905.....	12,506,841	55.1910
1904.....	8,577,554	55.7600
1903.....	9,735,125	55.9153
1902.....	11,764,887	56.3991
Mesabi		
1914.....	20,802,945	50.7480
1913.....	33,461,455	50.9701
1912.....	30,882,865	51.1958
1911.....	21,514,092	51.1842
1910.....	28,426,811	51.4195
1909.....	27,903,438	51.4864
1908.....	17,117,611	52.6552
1907.....	26,062,592	53.1100
1906.....	23,168,539	53.4386
1905.....	19,846,634	54.2392

1904.....	11,952,165	55.4493
1903.....	12,622,751	55.1884
1902.....	13,165,814	56.0663
All Ranges		
1914.....	30,475,694	51.6115
1913.....	46,385,288	51.6311
1912.....	44,365,100	51.9603
1911.....	30,255,438	51.8869
1910.....	41,172,143	52.0703
1909.....	40,582,405	52.1130
1908.....	24,774,568	52.9551
1907.....	38,574,136	53.4020
1906.....	36,179,170	53.8652
1905.....	32,353,475	54.6072
1904.....	20,529,719	55.5791
1903.....	22,357,876	55.5049
1902.....	24,930,701	56.2233

A corresponding statement is made of Bessemer ores for each range, giving phosphorus as well as iron content, and in some instances also the silica and moisture content. There are likewise statements of non-Bessemer ores by ranges, and the total of all ranges except Mesabi is also presented.

As will be observed from the table given, the Lake Superior ores have lost 4,618 units of iron in 12 years, the average iron content of the total tonnage moved in 1902 (excluding low grade, silicious and manganiferous, as indicated, was 56.2233%, while in 1914 this was reduced to 51.6115%. In 1914. The decrease was almost exclusively progressive only 1914, a year of low production, and 1912, a year of high production, showing gains over the preceding year.

The Mesabi range has lost 5,3183 units, or more than the average, while the old ranges have lost 2,0307 units, or much less than the average. As the Mesabi range has been shipping more than twice as much as the old ranges in recent years the loss

in all ranges falls much nearer the Mesabi loss than the old range loss.

Taking Bessemer ores alone all ranges, the average iron content in 1902 was 57.1109% and in 1914 53.4789%, showing a loss of 3.7320 units. Non-Bessemer ores alone decreased from 54.5778% to 50.5663%, or 4.0115 units. Thus the non-Bessemer ore decreased somewhat more than the Bessemer, but this does not indicate by any means that the Bessemer ores are relatively the more plentiful, because, comparing 1902, the year of record shipments to that time, with 1913, the record year to date, the non-Bessemer ore shipments increased from 8,735,395 tons to 27,829,653 tons, whereas the Bessemer ore shipments increased only from 16,195,306 tons to 18,555,635 tons. Thus the non-Bessemer ore more than tripled while the Bessemer ore increased scarcely 15%. To supply the increasing demand for non-Bessemer ores it was necessary to mine leaner and leaner bodies while not nearly so much had to be done in this direction in the case of Bessemer ores.

The relative iron content in ores from different ranges is shown by the following compilation applying to the 1914 ores:

Percentage of Iron Content.

	Bessemer.	Non-Bess.
Gogebic	54.4771	53.5142
Marquette	53.9746	53.0141
Menominee	56.9574	51.5970
Vermillion	58.4818	58.7976
Cuyuna .....	.....	50.0926
Total old range..	55.3773	52.5031
Mesabi	52.5751	49.5887
Total all ranges.	53.3789	50.5663

Thus the Vermillion shows the richest ores, by a wide margin, and there is the peculiar condition that the non-Bessemer ore of the Vermillion have a higher iron content than the Bessemer ores. This has been the case with the Vermillion right along. The highest average iron content of any range, either Bessemer or non-Bessemer, in any year beginning with 1902 was 66.4676%, Vermillion non-Bessemer in 1904, but the fact is of statistical interest only, seeing that only 70,005 tons was shipped.

The shipments of the different ranges were as follows in 1914, in percentages of total:

	Non-Bessemer Total	
Gogebic	18.2	7.3
Marquette	3.4	8.7
Menominee .....	.5	12.3
Vermillion	6.5	1.4
Cuyuna	0.0	3.8
Mesabi	71.4	66.5
Total	100.0	100.0

Thus it will be observed that the Mesabi ships more than two-thirds of all the ores, and is slightly stronger in Bessemer than non-Bessemer ores, while the Gogebic and Vermillion ores run strongly to Bessemer. The Marquette and Menominee ores are used largely in the open-hearth steel furnace, exercising an oxidizing action upon the carbon of the pig iron.

OUR FOREIGN TRADE.

Value of merchandise imports and exports, and favorable trade balance, calendar years.

	Imports.	Exports.	Balance.
1913—			
Jan.	163,063,438	227,032,930	63,969,492
Feb.	149,913,918	193,996,942	44,083,024
Mar.	155,445,498	187,426,711	31,981,213
April	146,194,461	199,813,438	53,618,977
May	133,723,713	194,607,422	60,883,709
June	131,245,877	163,404,916	32,159,039
July	139,061,770	160,990,778	21,929,008
Aug.	137,651,553	187,909,020	50,257,467
Sept.	171,084,843	218,240,001	47,155,158
Oct.	132,949,302	271,861,464	138,912,162
Nov.	148,236,536	245,539,042	97,302,506
Dec.	*184,025,571	233,195,628	49,170,057
1914—			
Jan.	154,742,923	204,066,603	49,323,680
Feb.	148,044,776	173,920,145	25,875,369
Mar.	182,555,304	187,499,234	4,943,930
April	173,762,114	162,552,570	†11,200,544
May	161,281,515	161,732,619	†2,548,896
June	157,329,450	157,072,044	†457,406
July	150,677,291	154,138,947	†5,538,344
Aug.	129,767,890	110,367,494	†19,400,396
Sept.	139,710,611	156,052,333	16,341,722
Oct.	138,080,520	194,711,170	56,630,650
Nov.	126,467,062	205,878,333	79,411,271
Dec.	114,656,545	245,632,558	130,976,013
1915—			
Jan.	122,265,267	267,801,370	145,536,103
Feb.	125,123,391	*298,727,757	*173,604,366

* High record.

RAILROAD STATISTICS.

The Interstate Commerce Commission's summary of steam railway operations in the fiscal year ended June 30, 1914, just issued, is an interesting document. The freight ton-mileage decreased a trifle over 5%, but was otherwise the heaviest on record. The 1913 ton-mileage was double that of 1901, 12 years earlier. The 1913 ton-mileage was 301 billion and the 1914 was 288 billion. We should judge that the ton-mileage in present fiscal year is running ahead of that of last year, though it may not pass that of 1913.

The total railway capital outstanding on June 30, 1914, is reported at \$20,247,301,257 as follows:

Stock	\$8,680,759,704
Mortgage bonds	8,496,370,538
Collateral trust bonds	1,182,683,530
Plain bonds, debenture and notes	1,142,016,070
Income bonds	254,230,505
Miscellaneous funded obligations	72,700,640
Equipment trust obligations	418,540,270
Total	\$20,247,301,257

This represents an increase of 2.2% in the year, while the increase in railroad mileage reporting was 1.2%, so that the capitalization per mile of road sensibly decreased.

The number of cars in service on June 30, 1914 was as follows:

Passenger service	53,466
Freight service	2,325,647
Company's service	124,700
Total	2,503,822
Increase per year	58,314
Increase in preceding year	76,566

The number of locomotives was 64,760, an increase of 1,382 in the year, the increase in the preceding year having been 2,192.

Track mileage on June 30, 1914, was as follows:

Line	247,498
Second track	27,604
Third track	2,696
Fourth, etc.	2,071
Yard and siding	97,333
Total track	377,102
Increase in year	7,525
Increase in preceding year	8,628

GERMAN AND AUSTRIAN STEEL PRODUCTION.

German steel production in August dropped to about one-third its former rate, but thereafter increased so that the December output was 60% of the average rate in the first seven months of 1914. The following figures give the production, in metric tons:

1914—

Monthly average, 7 mos. . .	1,571,634
August	566,822
September	663,223
October	900,201
November	900,026
December	941,399

The production in 1913 and 1914 has been as follows:

	1913.	1914.
Acid and basic ingots	18,394,975	14,490,336
Acid and basic castings	362,916	298,338
Acid ingots and castings	535,293	462,181
Basic ingots and castings	18,222,598	14,326,493
Total acid and basic	18,757,891	14,788,674

Crucible	90,113	95,099
Electric	101,755	89,556

Total

Total German steel production in previous years has been:

1900	6,645,869
1905	10,066,553
1910	13,698,638
1911	15,019,355
1912	17,301,998

The production of steel in Austria-Hungary in 1914 was as follows in metric tons:

Acid Bessemer	4,615
Basic Bessemer	159,500
Open-hearth	1,948,869
Puddled iron and steel ..	40,376
Crucible	17,557
Electric	19,844

Total ingots and castings	2,190,750
Total in 1913	2,682,619

FRENCH STEEL PLANTS in WAR TIME.

Two of the seven departments into which the French iron and steel industry is divided, the Muerthe et Moselle and the Nord respectively, are completely enveloped by the German forces, and these districts formerly produced three-fourths of the country's total production. The Muerthe et Moselle district belongs to the old Province of Lorraine. In this department is located one of the principal steel works of France, the Usine de Doeuf, but ten steps from the German frontier. The works were established before the Franco Prussian war, and a part of the property then became German.

The plants in the war zone have received such a battering that their usefulness is practically gone. In the event of the territory falling eventually to the enemy their usefulness would perhaps be gone permanently, as it is inconceivable that the French would buy the product. Their physical condition is entirely unknown, but it is not improbable that they are being worked for Germany's benefit. Inasmuch as the Germans have had workings in the same geological district, on the other side of the border, they have undoubtedly been disposed to conserve the plants, in the thought that they may eventually come permanently into their possession.

The department of mid-France, untouched by the invasion, was greatly crippled at the outset by the withdrawal of workmen, but is now working fairly well, the capacity being commandeered for war purposes, shutting off the supply of steel that would otherwise go for ordinary consumption.

This paralyzing of the home sources of supply to such a great extent has brought a demand for steel to the United States, a demand that will grow greater before it grows less.

The most important steel works in France is the Creusot. Its output of ordinary finished steel is but slightly diminished, although it suffers from a shortage of labor, and it is particularly busy in the manufacture of artillery. It has long been one of the foremost plants of the world in artillery manufacture.

The Hauts Fourneaux de Caen, in which the Prussian firm of Thyssen was largely

interested, has of course undergone a complete reorganization, and as this has not been altogether completed and there is considerable labor shortage the works are not in full operation. The iron ore output is going to other works to an extent.

What the ironmasters of France are looking forward to is a great development in the Lorraine basin, now largely "aggrandized," which is the Frenchman's naive way of saying simply that he hopes ultimately to recover by conquest all the iron-producing region which was lifted from him 40 odd years ago.—Abstracted from an article by Francis Miltoun in "The Iron Age" of April 29th.

BRITISH PIG IRON PRODUCTION.

The British Iron Trade Association has announced the Statistics of production of pig iron in Great Britain in 1914, at 9,005,898 gross tons, against 10,481,917 tons in 1913, a decrease of 14.1%. The decrease in the United States was 25%. The 1913 production of Great Britain was the record, but three preceding years, 1906, 1907 and 1910 had shown a production exceeding 10,000,000 tons. One must go back to 1868 to find a production less than 5,000,000 tons, so that it required 38 years for Great Britain to double her output, and there has been practically no increase since 1906.

Production by grades in 1914 was as follows:

Forge and foundry	3,430,448
Bessemer hematite	3,235,403
Basic	2,003,693
Spiegel, ferromanganese, etc.	336,354

Total 9,005,898

The pig iron production has been as follows in selected years:

1870	5,963,515
1880	7,749,233
1890	7,904,214
1900	8,959,691
1910	10,217,022
1911	9,718,638
1912	8,889,124
1913	10,481,917
1914	9,005,898

Production by half years in 1914 was:

First half	4,507,984
Second half	4,497,914

IRON AND STEEL,

THE SITUATION.

The merchant pig iron market is more hopeful than at any time since November. The steel trade is decidedly more sanguine. Pig iron prices show a disposition to advance rather than decline, while recent advances in steel products are held fully as well as was expected.

The merchant blast furnaces are making 15% more pig iron than in the four months November to February inclusive, when their production was stationary. The steel mills are operating at an average rate of 70% of capacity. The East is operating at about this rate, the Pittsburgh and valley mills at a higher rate and Chicago and the South at a somewhat lower rate.

Railroads are more actively in the market than at any time since the war started, being encouraged both by the prospects of heavier freight movement in future and by the greater easiness in money.

The April Movement.

Sales of pig iron were much larger in April than in any preceding month since December, excepting Buffalo, which had its chief movement in March. Steel works in the Central West purchased more than 100,000 tons of valley, southern Ohio and Alabama basic, while there were fair purchases in the East. A fairly heavy movement occurred in southern iron, stiffening the market 25 to 50 cents a ton. Both southern and Buffalo iron was also bought speculatively, to the extent of 200,000 tons or so, while speculative interests sought eagerly but without success to buy valley iron. The Lake Superior ore market was opened April 19th by actual sales, establishing the season prices at the same level as obtained in 1914 and 1912, prices having been higher in 1913.

Actual shipping orders booked for steel products during April were slightly smaller than in March, but no particular uneasiness has arisen on this score. There had been particularly heavy buying in March against certain contracts that were to expire with the month, and certain commodities were seasonably declining in activity, including wire products and material for agricultural implement and automobile builders.

Railroad Buying.

Just after the middle of April the Pennsylvania railroad system announced a budget of \$82,000,000 of expenditures on track and rolling stock, indicating that the budget represented the limit of possible expenditures, rather than purchases that were certain to be made this year. Later, however, it actually purchased 22,000 tons of steel for some 2,400 cars to be built at the Altoona shops, and definitely inquired for 138,000 tons of rails and 14,000 cars, the prospects at this writing being that at an early date all the rails and probably a large proportion of the cars will actually be ordered, for delivery this season. As the steel industry anticipated, upon the Pennsylvania announcement, inquiry from other roads increased sharply, and such inquiry now amounts to 15,000 or 20,000 cars, though little interest has been evinced in other purchases.

Plant Operations.

At the beginning of May the United States was producing pig iron at the rate of 26,300,000 tons a year, showing just a perceptible increase over the average rate in April, but a fair increase over the March rate. A continuance of the May 1st rate would mean 12,000,000 tons produced in the first half of this year, against 10,596,150 tons in the second half of last year, 12,536,094 tons in the first half and 16,188,602 tons in the first half of 1913, the record half year to date. The actual commercial capacity is about 36,000,000 tons annually, allowing for unfit and poorly positioned furnaces, as well as accidents and relinings.

The steel mills operated at an average rate of about 70% capacity during April, against an average of about 65% in March, and entered May with mixed prospects as to whether the rate would increase or decrease. On the one hand there was slightly decreased buying, while on the other hand railroad inquiry had increased and the general financial and business situation was so improved as to suggest that larger orders would come quickly.

Steel Prices.

The 120c price on bars, plates and shapes which the large mills sought to establish under date of April 1st, was fairly well held during the month, probably as well as

IRON AND STEEL.

had been expected since it was realized that difficulties would be encountered. The eastern mills firmed up during the first week in April, doing somewhat better than had been expected. Chicago did not adopt the advance in full, but opinion is constantly growing that eventually Chicago will be found on its own basis, at say \$2 a ton above Pittsburgh, instead of the full freight differential, amounting to nearly \$4 a ton. The

mills wrote a number of contracts for third quarter at 1.25c, and have hopes of establishing that level, though implement makers and some other large consumers would doubtless be covered at slightly lower figures.

Under date of May 1st the National Tube Company advanced all sizes of standard steel pipe and line pipe one point, or about \$2 a ton, following an advance of one

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	Bessemer, Basic, No. 2 fdy, Basic No. 2X fdy, Cleve-						— No. 2 fdy —		Ferro-	Fur-	
	— Valley —			Phila.	Phila.	Buffalo.	land.	Chi-	Birm-	mangan-	nace
								cago.	ingham.	ese.*	coke†
1913—											
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept. .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. .	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov. .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year .	16.26	14.77	14.87	16.2°	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡	1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70
Oct. .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65
Nov. .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60
Dec. .	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60
Year .	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80	1.72
1915—											
Jan. ..	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55
Feb. .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55
Mar. .	13.60	12.50	12.75	13.50	14.35	11.74	13.25	13.39	9.42	78.00	1.53
April .	13.60	12.50	12.75	13.40	14.05	12.69	13.25	13.50	9.25	78.00	1.55

* Contract price, f.o.b. Baltimore; † Prompt, f.o.b. Connellsville ovens.

‡ Spot shipment; no contract market.

IRON AND STEEL.

point February 11th on 6-inch and less. Boiler tubes were also advanced one point, the list of February 11th having represented a readjustment. Wrought iron pipe manufacturers followed with an advance of one point on black and two points on galvanized. In the case of steel pipe the difference between black and galvanized had been increased two points on February 11th as regards 3/4-inch to 6-inch.

War and Other Export Business.

Precise quantitative statements as to war orders are impossible. The rumors indicate a very heavy business. In the case of shrap-

nel, by far the major part of the pipe and the finished product goes to the rail and locomotive and other shops that are setting up finishing departments, but the steel trade realizes a fair tonnage. The total export demand, including war material, probably represents in the neighborhood of 15% of the steel industry's present output, and the prospects are that the demand will continue for a long time, possibly even increasing.

Prospects.

Judged by the actual flow of orders, the steel trade's prospects are not particularly

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

Composite

Wire Cut

Sheets

Tin

Finished

Shapes, Plates, Bars, Pipe, Wire, Nails. Nails. Black, Galv. plate. steel.

1913—

January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.72	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79 3/4	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79 1/2	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79 3/4	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September .	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November .	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558

Year

Year	1.42	1.41	1.38	79 3/4	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
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1914—

January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79 1/2	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79 1/2	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79 3/4	1.40	1.60	1.60	1.90	2.89	3.39	1.5334
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November .	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.35	1.5182

1915—

January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	3.10	1.4554
February ..	1.10	1.10	1.10	80 3/8	1.38	1.58	1.55	1.80	3.09	3.10	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.80	3.40	3.15	1.5098
April	1.20	1.20	1.20	80	1.37	1.57	1.55	1.80	3.40	3.20	1.5357

IRON AND STEEL.

good. The slight decrease that seems to have occurred in April, or even the absence of an increase, would be sufficient, so delicately are the minds of buyers balanced, to result in a material recession in activity. Judged by general business prospects there is every reason to expect an increase in steel activity. No large increase is needed to start the iron and steel markets on a long course of activity, for with labor supply as light as it is the steel industry could hardly operate at more than about 85% of its capacity, and it is credited with having operated at 70% of capacity since late in March. If the slight increase occurs that is needed to test the ability of steel mills to make deliveries, there will be a falling behind in deliveries of some commodities at least, resulting in buyers doubling up with their purchases in an effort to accumulate the stocks they must have if they can no longer depend upon mill shipments within a few days after the filing of a miscellaneous specification.

In this direction there are possibilities that are hardly realized. It is easily conceivable that an actual boom can start within a very few months, and such items as \$4 coke, \$20 pig iron, \$30 billets and premiums for prompt shipment of finished steel may possibly make part of an iron and steel market report within a very few months.

THE IRON AND STEEL EXPORT SITUATION.

February Exports.

The official statistics of imports and exports in February, made public in the "Monthly Summary" on April 19th, furnish no support to the reports that had been in circulation that the iron and steel export trade has greatly improved this year. If there have been largely increased bookings beginning with January the increase is not reflected in the February shipments, for the total of all the items returned by weight is 144,366 gross tons less than 5,000 tons gain over January, and still falling short by nearly 3,000 tons of the exports as far back as last October. Barring October, however, February showed the heaviest tonnage exports since April of last year.

The exports continue to reflect the war very clearly. As war material has increased other material seems to have experienced some further decrease. In the whole list of steel products in February steel bars show the largest total, a shade over 20,000 gross tons, or a trifle more than the combined exports of iron and steel plates and sheets, including galvanized sheets, and somewhat in excess also of the exports of plain and barbed wire, largely a war material also. The steel trade loses almost as much in rails as it makes in all war material. In the record export year for rails, 1913, the rail exports averaged 38,000 gross tons a month, but in February only 9,124 tons was exported. Of course the rail exports had begun to decrease some time before the war started.

Lumpy prices supposed to be paid for some war material exported have not helped in the total value of all iron and steel, for the value in February is given at \$16,470,751, including certain machinery, hardware, etc., this being more than \$1,500,000 less than the January total, and barely exceeding the total of last October. We are still somewhat behind the average of the seven months before the war, and far behind what we did in 1912 and 1913, when we averaged over \$24,000,000 a month.

Iron and steel imports in February, 7,506 gross tons, were very small and we think were literally the smallest on record, for they fall far short of anything we have had in recent years, and if we go back to 1881 we find a year in which the imports of rails alone averaged nearly 20,000 tons a month. There was only 419 tons of rails imported last February, but there will be more when the Algoma Steel Company begins real shipments on the 70,000 tons or more lately sold to American roads.

Tin plate shows an interesting balance, or lack of balance, there being 265 gross tons imported in February, against over 5,800 tons exported, making our exports exceed our imports by a rate of more than 66,000 tons a year.

Our regular tables of imports and exports by months for a number of years are given on page 195.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	
August	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773	
September ...	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November ...	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December ...	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613	
Totals ...	\$201,271,903	\$249,656,411	\$289,128,420	\$293,934,160	\$199,861,684	\$34,524,172

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	
April	93,285	100,911	117,921	228,149	267,313	259,689	161,952	
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	
June	69,770	114,724	120,601	174,247	273,188	243,108	144,003	
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	
Totals	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,730,681	1,549,503	284,157

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. ..	154,118	175,463	101,804	75,286
Feb. ..	129,693	188,734	112,574	78,773
Mar. ..	157,469	164,865	68,549	
April ..	178,502	174,162	111,812	
May ..	194,482	191,860	125,659	
June ..	180,122	241,069	188,647	
July ..	185,677	272,017	141,838	
Aug. ..	178,828	213,139	135,693	
Sept. ..	180,571	295,424	109,176	
Oct. ..	202,125	274,418	114,341	
Nov. ..	163,017	179,727	90,222	
Dec. ..	199,982	223,892	51,053	
Totals	2,104,576	2,594,770	1,351,368	154,059

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan. ..	33,071	20,008	21,740	17,835	10,568
Feb. ..	20,812	11,622	25,505	14,309	7,506
Mar. ..	23,533	15,466	27,467	27,829	
April ..	22,392	12,481	25,742	30,585	
May ..	23,347	15,949	28,728	28,169	
June ..	29,399	21,407	36,597	23,076	
July ..	15,782	17,882	39,694	25,282	
Aug. ..	10,944	20,571	18,740	28,768	
Sept. ..	14,039	18,740	19,941	38,420	
Oct. ..	21,035	25,539	20,840	22,754	
Nov. ..	13,880	24,154	25,809	24,165	
Dec. ..	19,665	21,231	26,454	9,493	
Totals	256,903	225,072	317,260	290,194	18,074

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing.
	High.	Low.	High.	Low.	High.	Low.	April 30
Bessemer, valley	17.25	14.25	14.25	13.75	13.75	13.60	13.60
Basic, valley	16.50	12.50	13.25	12.50	12.50	12.50	12.50
No. 2 foundry, valley	17.50	13.00	13.25	12.75	12.75	12.75	12.75
No. 2X fdy. Philadelphia..	18.50	14.50	15.00	14.20	14.50	14.00	14.25
No. 2 foundry, Cleveland ..	17.75	13.50	14.25	13.25	13.25	13.25	13.25
No. 2X foundry, Buffalo...	18.00	13.00	13.75	12.25	12.25	11.75	12.75
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	13.50	13.25	13.50
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	9.75	9.25	9.25
Scrap Iron and Steel.							
Melting steel Pittsburgh ..	15.00	10.75	12.00	9.75	12.50	11.00	11.75
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	9.25	8.75	9.25
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	10.75	10.75	10.75
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	11.75	11.00	11.75
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	11.25	9.50	11.25
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.20	1.20	1.20
Iron bars, Philadelphia....	1.67½	1.22½	1.27½	1.12½	1.17½	1.12½	1.17½
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.15	1.10	1.15
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.20	1.10	1.20
Structural shapes, Pitts. .	1.50	1.20	1.25	1.05	1.20	1.10	1.20
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12½	1.12½	1.12½	1.12½
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	1.80	1.80	1.80
Galv. sheets, Pittsburgh..	3.50	2.80	3.00	2.75	3.40	2.65	3.40
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.20	3.10	3.10
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.55	1.55	1.55
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.60	1.50	1.55
Steel pipe, Pittsburgh	79%	80%	79%	81%	79%	81%	79%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.75	2.00	1.60	1.60	1.50	1.55
Prompt foundry	4.50	2.40	2.50	2.00	2.20	2.00	2.00
Metals—New York.							
Straits tin	51.00	36.75	65.00	28.50	57.00	32.80	39.50
Lake copper	17.75	14.50	15.50	11.30	19.00	13.00	18.87½
Electrolytic copper	17.65	14.12½	14.87½	11.10	18.87½	12.80	18.62½
Casting copper	17.45	13.87½	14.65	11.00	18.00	12.70	17.75
Sheet copper	22.00	19.75	20.25	16.50	24.00	18.75	24.00
Lead (Trust price)	4.75	4.00	4.15	3.50	4.20	3.70	4.20
Spelter	7.35	5.10	6.20	4.75	14.50	5.70	14.00
Cooksons antimony	9.87½	7.25	22.00	7.00	38.00	16.00	37.00
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	19.50	18.75	19.37½
Silver	63¾	56½	59¼	47¾	51½	48	50½
St. Louis.							
Lead	4.72½	3.85	4.10	3.35	4.15	3.50	4.10
Spelter	7.17½	4.95	6.00	4.60	14.00	5.55	13.75
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	17.50	9.00	17.50
London.							
Standard tin, prompts	232	166½	188	132	190	148½	159½
Standard copper, prompts...	77½	61¾	66¾	49	81¼	57½	77
Lead	21½	15¾	24	17¾	23½	18¼	21¾
Spelter	26¼	20¼	33	21¼	64½	28½	64
Silver	29¾d	25½d	27¼d	22½d	24½d	23½d	23½d

COMPARISON OF SECURITY PRICES.

Range for 1913. Range for 1914. Range for 1915. Closing.

Railroads.	High.	Low.	High.	Low.	High.	Low.	April 30
Atchison, Top. & Sante Fe...	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100 $\frac{3}{8}$	89 $\frac{1}{2}$	105	92 $\frac{1}{2}$	102 $\frac{3}{4}$
Atch. Top. & Sante Fe, pfd..	102 $\frac{1}{4}$	96	101 $\frac{3}{4}$	96 $\frac{1}{2}$	100	96	100
Baltimore & Ohio	106 $\frac{1}{8}$	90 $\frac{5}{8}$	98	67	79	63 $\frac{1}{4}$	77 $\frac{1}{2}$
Canadian Pacific	266 $\frac{3}{4}$	204	220	153	174	157	165 $\frac{3}{4}$
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	40	49	40	47 $\frac{1}{8}$
Chicago, Mil. & St. Paul	116 $\frac{1}{4}$	96 $\frac{3}{4}$	107 $\frac{1}{8}$	84 $\frac{3}{4}$	98 $\frac{1}{4}$	83 $\frac{1}{4}$	96
Erie R. R.	32 $\frac{1}{2}$	20 $\frac{1}{4}$	32 $\frac{1}{2}$	20 $\frac{1}{8}$	30	19 $\frac{7}{8}$	28 $\frac{3}{4}$
Great Northern, pfd.	132 $\frac{1}{2}$	115 $\frac{1}{2}$	134 $\frac{3}{4}$	111 $\frac{1}{8}$	122 $\frac{3}{4}$	112 $\frac{3}{4}$	120 $\frac{3}{4}$
Lehigh Valley	168 $\frac{3}{8}$	141 $\frac{1}{4}$	156 $\frac{1}{4}$	118	146 $\frac{1}{2}$	129 $\frac{1}{4}$	143 $\frac{3}{8}$
Louisville & Nashville	142 $\frac{1}{4}$	126 $\frac{1}{4}$	141 $\frac{7}{8}$	125	125 $\frac{1}{2}$	110	125 $\frac{1}{2}$
Missouri, Kansas & Texas ..	29 $\frac{1}{8}$	18 $\frac{1}{8}$	24	8 $\frac{3}{8}$	15 $\frac{1}{4}$	7 $\frac{7}{8}$	13 $\frac{5}{8}$
Missouri Pacific	43 $\frac{3}{8}$	21 $\frac{1}{4}$	30	7	18	6 $\frac{1}{8}$	14 $\frac{1}{2}$
New York Central	109 $\frac{3}{4}$	90 $\frac{3}{8}$	96 $\frac{1}{8}$	77	92 $\frac{1}{4}$	81 $\frac{1}{2}$	88 $\frac{1}{2}$
N. Y., N. H. & Hartford	129 $\frac{7}{8}$	65 $\frac{5}{8}$	78	49 $\frac{5}{8}$	71 $\frac{1}{4}$	43	67 $\frac{3}{4}$
Northern Pacific	122 $\frac{3}{8}$	101 $\frac{3}{4}$	118 $\frac{1}{2}$	97	112 $\frac{3}{8}$	99 $\frac{1}{8}$	109 $\frac{3}{4}$
Pennsylvania R. R.	123 $\frac{3}{4}$	106	115 $\frac{1}{2}$	102 $\frac{1}{2}$	111 $\frac{1}{8}$	103 $\frac{3}{8}$	109 $\frac{1}{2}$
Reading	171 $\frac{1}{4}$	151 $\frac{3}{8}$	172 $\frac{1}{4}$	137	157	140 $\frac{1}{8}$	151 $\frac{1}{2}$
Rock Island	247 $\frac{1}{8}$	115 $\frac{1}{8}$	168	8	1	7	58
Southern Pacific	110	83	99 $\frac{1}{2}$	81	95	81 $\frac{1}{4}$	93
Union Pacific	162 $\frac{3}{4}$	137 $\frac{3}{4}$	164 $\frac{3}{8}$	112	134 $\frac{5}{8}$	115 $\frac{3}{4}$	131 $\frac{3}{4}$
Wabash	6	2	4 $\frac{1}{8}$	1	2	1	17 $\frac{1}{8}$

Industrials.

Amalgamated Copper	80 $\frac{1}{2}$	61	78 $\frac{1}{2}$	48 $\frac{3}{4}$	79 $\frac{1}{2}$	50 $\frac{3}{8}$	77
Am. Beet Sugar	50 $\frac{1}{2}$	19 $\frac{3}{4}$	33 $\frac{1}{2}$	19	50 $\frac{1}{2}$	33 $\frac{1}{4}$	49 $\frac{3}{4}$
American Can	467 $\frac{1}{2}$	21	35 $\frac{1}{8}$	19 $\frac{1}{4}$	44	25	43 $\frac{1}{8}$
American Can Pfd.	129 $\frac{1}{2}$	80 $\frac{1}{2}$	96	80	100	89	100 $\frac{1}{8}$
Am. Car & Foundry	56 $\frac{3}{8}$	36 $\frac{1}{2}$	53 $\frac{1}{2}$	42 $\frac{1}{4}$	59 $\frac{1}{4}$	40	58
Am. Cotton Oil	57 $\frac{3}{8}$	33 $\frac{1}{2}$	46 $\frac{1}{2}$	32	54	35	52
Am. Locomotive	44 $\frac{1}{2}$	27	37 $\frac{1}{4}$	29 $\frac{1}{4}$	68	19	60 $\frac{1}{2}$
Am. Smelting & Refining	74 $\frac{3}{4}$	58 $\frac{1}{2}$	71 $\frac{1}{2}$	50 $\frac{1}{4}$	76	56	73 $\frac{3}{4}$
Brooklyn Rapid Transit	92 $\frac{3}{4}$	83 $\frac{3}{4}$	94 $\frac{1}{4}$	79	93	84 $\frac{1}{2}$	90 $\frac{3}{4}$
Chino Copper	47 $\frac{5}{8}$	30 $\frac{3}{8}$	44	31 $\frac{5}{8}$	49 $\frac{3}{4}$	32 $\frac{3}{4}$	47
Colo. Fuel & Iron Co.	41 $\frac{1}{2}$	24 $\frac{1}{2}$	34 $\frac{1}{2}$	20 $\frac{1}{2}$	36 $\frac{1}{2}$	21 $\frac{3}{4}$	32 $\frac{7}{8}$
Consolidated Gas	142 $\frac{3}{8}$	125 $\frac{1}{8}$	139 $\frac{1}{2}$	112 $\frac{1}{2}$	131 $\frac{3}{4}$	113 $\frac{3}{4}$	131
General Electric	187	129 $\frac{3}{4}$	150 $\frac{5}{8}$	137 $\frac{1}{2}$	161 $\frac{1}{2}$	138	161 $\frac{1}{4}$
Interborough Metropolitan ..	19 $\frac{5}{8}$	12 $\frac{3}{8}$	16 $\frac{3}{8}$	10 $\frac{3}{4}$	24 $\frac{3}{4}$	10 $\frac{5}{8}$	23
International Harvester	111 $\frac{1}{2}$	96	113 $\frac{1}{2}$	82	106 $\frac{1}{4}$	90 $\frac{1}{2}$	103 $\frac{1}{2}$
International Steam Pump ...	18 $\frac{1}{2}$	4 $\frac{1}{2}$	9 $\frac{7}{8}$	3	10 $\frac{7}{8}$	7 $\frac{1}{8}$	6
Lackawanna Steel	497 $\frac{1}{8}$	297 $\frac{1}{8}$	40	26 $\frac{1}{2}$	45 $\frac{1}{2}$	28	45
National Lead	56 $\frac{1}{4}$	43	52	40	70	44	69 $\frac{1}{8}$
Ray Consolidated Copper	22	15	22	15	26 $\frac{1}{8}$	15 $\frac{1}{4}$	24 $\frac{1}{8}$
Republic Iron & Steel	28 $\frac{3}{8}$	17	27	18	34	19	30 $\frac{3}{4}$
Republic Iron & Steel, pfd...	92 $\frac{1}{4}$	72	91 $\frac{1}{4}$	75	88 $\frac{3}{8}$	72	88
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19 $\frac{1}{2}$	42	22	38 $\frac{3}{4}$
Texas Co.	132 $\frac{1}{2}$	89	149 $\frac{1}{8}$	112	144	123 $\frac{1}{4}$	140
U. S. Rubber	69 $\frac{1}{2}$	51	63	44 $\frac{1}{2}$	74 $\frac{1}{4}$	51 $\frac{1}{8}$	70 $\frac{1}{2}$
U. S. Steel Corporation	69 $\frac{1}{2}$	49 $\frac{7}{8}$	67 $\frac{1}{4}$	48	60 $\frac{7}{8}$	38	58 $\frac{3}{4}$
U. S. Steel Corporation, pfd.	110 $\frac{3}{4}$	102 $\frac{1}{2}$	112 $\frac{3}{4}$	103 $\frac{1}{4}$	110 $\frac{3}{4}$	102	109 $\frac{3}{4}$
Utah Copper	60 $\frac{5}{8}$	39 $\frac{5}{8}$	59 $\frac{3}{8}$	45 $\frac{3}{8}$	73	48	68 $\frac{5}{8}$
Va.-Carolina Chem.	43 $\frac{3}{8}$	22	34 $\frac{7}{8}$	17	31 $\frac{1}{4}$	15	31 $\frac{1}{8}$
Western Union Telegraph ...	75 $\frac{1}{8}$	54 $\frac{1}{4}$	66 $\frac{7}{8}$	53 $\frac{3}{8}$	70 $\frac{7}{8}$	57	69

IRON AND STEEL.

PIG IRON PRODUCTION.

Rates per annum, including charcoal pig.

January, 1913	33,275,000
February	34,050,000
March	32,900,000
April	33,850,000
May	33,500,000
June	32,300,000
July	30,500,000
August	30,100,000
September	30,800,000
October	30,350,000
November	27,500,000
December	23,700,000
January, 1914	22,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000
March	24,600,000
April	26,000,000
On May 1st	26,300,000
Actual production:	
1900	13,789,242
1910	27,303,567
1913	30,966,152
1914	33,332,244

ROLLING THIN BANDS.

Steel bands as thin as one-thousandth of an inch can be rolled at a mill erected late last year at Floral Park, Somerville, N. J., by the Schwartz-Hermann Steel Works. The method employed to produce bands of such extreme thinness is to roll an experimental piece of the particular lot of steel to be reduced, increasing the reduction by the rolls until the steel begins to crack, the rolls then being relaxed by a safe margin, and after each rolling the material is annealed and pickled. The rolling mill comprises two batteries of German rolls, four pairs of 8-

inch and six pairs of 6-inch respectively, belt driven from a shaft operated by a 50 h.p. motor. The plant has a capacity of about 300 tons a month, the product being used chiefly for stamping purposes. Steel is rolled in carbon from soft up to 1.30% carbon.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February	1.4831	1.1590	1.024
March-April	1.5430	1.176	
May-June	1.5272	1.1257	
July-August	1.5029	1.0928	
September-October	1.3931	1.0847	
November-December	1.2030	1.037	
Year's average	1.4421	1.1125	

STEEL MAKING PIG AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. ...	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. ...	14.225	13.60	13.059	12.50
Mar. ...	14.1667	13.60	13.041	12.50
April ...	14.00	13.60	13.00	12.50
May ...	14.00	....	13.00	....
June ...	14.00	....	13.00	....
July ...	14.00	....	13.00	....
Aug. ...	14.00	....	13.00	....
Sept. ...	14.00	....	13.00	....
Oct. ...	13.9375	....	12.85	....
Nov. ...	13.6375	....	12.477	....
Dec. ...	13.75	....	12.50	....
Year ..	13.9793	....	12.854	....

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our composite finished steel. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1913—				Sept 16	Tin plate	3.60	to 3.30
Nov. 25	Shapes	1.35	to 1.30	" 26	Sheets	2.00	to 1.95
" 28	Wire nails	1.60	to 1.55	" 29	Bars	1.20	to 1.15
Dec. 2	Sheets	1.95	to 1.90	" 29	plates	1.20	to 1.15
" 3	Shapes	1.30	to 1.25	" 30	Tin plate	3.30	to 3.25
" 4	Plates	1.25	to 1.20	Oct. 5	Sheets	1.95	to 2.00
" 11	Bars	1.25	to 1.20	" 7	Shapes	1.20	to 1.15
" 22	Shapes	1.25	to 1.20	" 22	Sheets	2.00	to 1.90
Dec. 31	Sheets	1.90	to 1.80	" 27	Plates	1.15	to 1.10
1914—				Nov. 2	Pipe (extra 2½% removed)		
Jan. 6	Wire nails	1.55	to 1.50	" 5	Bars	1.15	to 1.10
" 7	Sheets	1.80	to 1.85	" 5	Shapes	1.15	to 1.10
" 13	Wire nails	1.50	to 1.55	" 18	Sheets	1.90	to 1.85
" 21	Sheets	1.85	to 1.90	" 24	Plates	1.10	to 1.05
" 30	Sheets	1.90	to 1.95	" 24	Wire nails	1.60	to 1.55
Feb. 3	Pipe	80% to 79½%		Dec. 1	Bars	1.10	to 1.05
" 2	Wire nails	1.55	to 1.60	" 1	Shapes	1.10	to 1.05
" 4	Shapes	1.20	to 1.25	" 3	Tin plate	3.25	to 3.20
Mar. 9	Shapes	1.25	to 1.20	" 4	Wire nails	1.55	to 1.50
" 20	Plates	1.20	to 1.15	" 28	Tin plate	3.20	to 3.10
April 1	Bars	1.20	to 1.15	" 30	Sheets	1.85	to 1.80
" 8	Sheets	1.95	to 1.90	1915—			
" 17	Shapes	1.20	to 1.15	Jan. 1	Bars	1.05	to 1.10
" 20	Pipe	79½% to 80%		" 1	Plates	1.05	to 1.10
" 27	Sheets	1.90	to 1.85	" 1	Shapes	1.05	to 1.10
" 29	Tin plates	3.40	to 3.30	" 11	Wire nails	1.50	to 1.55
May 19	Bars	1.15	to 1.12½	Feb. 11	Wire nails	1.55	to 1.60
" 22	Wire nails	1.60	to 1.55	" 11	Pipe	81% to 80%	
" 26	Shapes	1.15	to 1.12½	" 15	Galv. sheets	3.00	to 3.25
" 29	Plates	1.12½ to 1.10		" 25	Galv. sheets	3.25	to 3.40
" 29	Wire nails	1.55	to 1.50	Mar. 1	Bars	1.10	to 1.15
June 9	Sheets	1.85	to 1.80	" 1	Plates	1.10	to 1.15
" 19	Bars	1.12½ to 1.10		" 1	Shapes	1.10	to 1.15
" 19	Shapes	1.12½ to 1.10		" 1	Wire galvanizing		
July 20	Wire nails	1.50	to 1.55		differential	40c	to 50c
1914—				Mar. 15	Shafting	68% to 70%	
" 21	Bars	1.10	to 1.15		(New list, f.o.b. Pittsburgh		
" 21	Shapes	1.10	to 1.15		instead delivered)		
" 23	Plates	1.10	to 1.15	" 17	Wire galvanizing differential		
" 30	Tin plate	3.30	to 3.35		(by A.S. & W. Co.)	50c	to 60c
Aug. 5	Tin plate	3.25	to 3.40	April 1	Boiler tubes	75%	
" 6	Sheets	1.80	to 1.85	" 1	Bars	1.15	to 1.20
" 11	Sheets	1.80	to 1.85	" 1	Plates	1.15	to 1.20
" 11	Bars	1.15	to 1.20	" 1	Shapes	1.15	to 1.20
" 11	Shapes	1.15	to 1.20	" 14	Wire nails	1.60	to 1.55
" 14	Tin plate	3.40	to 3.60	May 1	Steel pipe	80% to 79%	
" 21	Wire nails	1.55	to 1.60	" 1	Boiler tubes	75% to 74%	
" 31	Sheets	1.90	to 2.00	" 1	Tin plate	3.20	to 3.10

COMPOSITE STEEL.

Computation for May 1, 1915:

Pounds.	Group.	Price.	Extension.
2½	Bars	1.20	3.000
1½	Plates	1.20	1.800
1½	Shapes	1.20	1.800
1½	Pipe (¾-3)	2.10	3.150
1	Wire nails	1.55	2.325
1	Sheets (28 bl.)	1.80	1.800
½	Tin plates	3.10	1.550
10 pounds			15.425
One pound		1.5425	

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	.....
June	1.6817	1.5794	1.7719	1.4750	.....
July	1.6701	1.6188	1.7600	1.4805	.....
Aug.	1.6394	1.6784	1.7400	1.5421	.....
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

Melting Steel. Bundled No. 1 R. R. No. 1 No. 1 Heavy Sheet. Wrought, Cast, Steel, Melt'g. Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1913—

Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21

1914—

Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.52	11.51	11.71	10.53	9.55

1915—

Jan.	11.40	9.20	10.75	11.25	10.30	9.00
Feb.	11.70	9.25	10.75	11.25	10.70	9.20
Mar.	11.80	9.37	10.75	11.50	10.85	9.25
Apr.	11.65	9.37	10.75	11.85	11.10	9.13

COMPOSITE PIG IRON.

Computation for May 1, 1915:

One ton Bessemer, valley	\$13.60
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.25
One ton No. 2X foundry, Buffalo	12.75
One ton No. 2 foundry, Cleveland	13.25
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry, Cincinnati (12.15)	24.30
Total, ten tons	129.10
One ton	12.940

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	.....
June	14.032	14.005	14.968	13.606	.....
July	13.926	14.288	14.578	13.520	.....
Aug.	13.874	14.669	14.565	13.516	.....
Sept.	13.819	15.386	14.692	13.503	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

UNFINISHED STEEL**AND IRON BARS.**

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv.— Phila. Pitts. Ch'go.
1913—				
Dec.	20.00	21.00	25.25	1.25 1.37 1.12
Year	25.55	26.43	28.39	1.51 1.59 1.45
1914—				
Jan.	20.00	20.25*	25.75	1.24 1.35 1.11
Feb.	21.00	22.00	26.00	1.28 1.35 1.14
Mar.	21.00	22.00	26.00	1.28 1.35 1.15
Apr.	20.75	21.75	25.50	1.23 1.31 1.14
May	20.00	21.00	26.00	1.23 1.29 1.10
June	19.50	20.35	25.00	1.23 1.25 1.08
July	19.50	20.00	25.00	1.19 1.25 1.06
Aug.	20.17	21.08	25.25	1.18 1.25 1.07
Sep.	20.75	21.75	26.00	1.18 1.20 1.07
Oct.	20.00	20.70	26.00	1.14 1.20 1.01
Nov.	19.25	19.75	25.00	1.13 1.20 .96
Dec.	18.75	19.25	24.40	1.12 1.20 .91
Year	20.06	20.82	25.50	1.20 1.27 1.07
1915—				
Jan.	19.25	19.75	24.80	1.12 1.20 .97
Feb.	19.25	19.75	25.00	1.12 1.20 1.03
Mar.	19.30	19.80	25.00	1.13 1.20 1.10
Apr.	19.50	20.00	25.00	1.18 1.20 1.14

* Premiums for Bessemer.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909.

Quarter.	1915.	1914.	1913.
1st	\$12,457,809	\$17,994,382	\$34,426,802
2nd		20,457,596	41,219,813
3rd		22,276,002	38,450,400
4th		10,935,635	23,084,330
Year		71,663,615	127,181,345
	1912.	1911.	1910.
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	30,063,512	29,522,725	37,365,187
4th	35,181,922	23,155,918	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643

CAR BUYING.

Freight cars ordered:

First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	8,000	
April	10,000	
May	10,000	
June	15,000	
July	7,000	
August	3,100	
September	95	
October	1,725	
November	550	
December	1,150	
Year, 1914		80,000
1915		
January	3,300	
February	4,255	
March	1,287	
April	3,000	

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
	%	%	%	Tons.
July	90	55	-35	-407,961
August	90	75	-15	-175,888
September	82	74	-18	-219,683
October	87	74	-40	-490,018
November	70	59	-11	-117,420
December	50	40	-10	-114,239
January 1914	55	83	+28	+331,572
February	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,733
August	67	72	+ 5	+ 54,742
September	62	24	-38	-425,664
October	55	28	-27	-326,570
November	45	32	-13	-136,505
December	38	82	+44	+512,051
January 1915	44	81	+37	+411,928
February	57	66	+ 9	+ 96,800
March	67	60	- 7	- 89,622

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1914—	Pig iron.	Rails.	Tin Plate.	Total*
Jan.	82,182	57,904	43,164	467,449
Feb.	59,832	35,484	41,744	353,861
Mar.	92,364	40,207	40,863	414,902
April	93,396	30,682	44,296	394,535
May	95,037	56,881	48,628	437,648
June	83,569	39,700	36,565	356,066
July	74,617	43,133	47,237	385,301
Aug.	28,342	22,763	21,414	211,605
Sept.	37,793	39,185	23,440	228,992
Oct.	47,188	37,005	26,950	263,834
Nov.	49,666	16,181	30,942	240,617
Dec.	31,705	16,315	30,254	212,667
Year	90,405	435,440	435,497	3,977,468
1915—				
Jan.	21,138	24,411	29,216	230,204
Feb.	21,934	14,877	25,101	198,804
Mar.	20,172	17,572	36,170	239,342

* Includes scrap, pig iron, rolled iron and steel cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

COPPER.

COPPER IN APRIL.

The copper market in April has been a record of continuous advances without a single recession except a slight reaction in the speculative London price during the last three or four days of the month.

The market opened at 16½c for Lake, 15½c for Electrolytic, and 15¾c for Casting, and after what were virtually continuous daily advances, the market closes at 18¾c for Lake, 18¾c for Electrolytic, 17¾c for Casting. In other words an advance of about 7½c per pound since November 1st and 6c per pound since January 1st. The important part copper plays in the affairs of the commercial world makes this movement probably the most important and far reaching in its effect of anything that has taken place recently in business and to many it foreshadows a great revival in trade.

The basis for the advance has been a sound one, although there has been an element of speculation in some of the foreign orders that have helped to create the advance. Modern warfare has been proved to be a great consumer of copper, spelter and antimony, and the beginning of this demand found the principal copper producer for the world, America, under reduced productive operations by reason of the collapse in finances and business generally that marked the opening month of the war, also by reason of Germany our principal customer being suddenly entirely shut off. This production has been restored at the present time to full proportions at the mines and smelters, but has not yet reached the refineries. In a short time it will be demonstrated if with about 200,000 tons cut off that Germany takes from us in a normal year, there will sufficient demand from the Allies and our own trade to absorb all we can produce. Time alone will tell. Price is so high that it will be very sensitive to any increase in stocks. Also there has been the great stimulating effects caused by the Wall Street advances, and any serious reaction there would be certain to be reflected in disturbing confidence in copper prices, even if there is no change in actual position of supply and demand.

The main factor in the sensational advance has been Europe's necessity for copper, unwrought or finished, expressed in either purchases of copper to be exported, or placing of large orders for ordnance or other war munitions manufactured in this country, and as far as can be seen with no end of the war in sight, this demand is certain to continue if not increase. There has also been an improvement in consumption for war requirements, although outside of the extraordinary activity of the brass trade, other lines like the wire, electrical and foundry trade, railroad equipments, etc., are still quite a little below normal. These

COPPER PRICES IN APRIL.

		— New York —		London.	
		Lake.	Electro.	Casting.	Standard.
Day.	Cents.	Cents.	Cents.	£	s d
1	16.50	15.80	15.12½	69	7 6
2 .....	.....	.....	.....	.....	.....
3 .....	.....	.....	.....	.....	.....
4 .....	.....	.....	.....	.....	.....
5	16.50	15.80	15.37½	.....	.....
6	16.50	15.80	15.50	69	17 6
7	16.50	15.90	15.50	70	5 0
8	16.50	16.00	15.50	71	2 6
9	16.50	16.12½	15.62½	71	15 0
10 .....	.....	.....	.....	.....	.....
11 .....	.....	.....	.....	.....	.....
12	16.75	16.37½	15.87½	72	15 0
13	16.62½	16.37½	15.87½	71	17 6
14	16.75	16.50	15.87½	72	7 6
15	16.87½	16.62½	16.00	73	5 0
16	17.00	16.75	16.12½	74	10 0
17 .....	.....	.....	.....	.....	.....
18 .....	.....	.....	.....	.....	.....
19	17.62½	17.25	16.62½	76	12 6
20	17.62½	17.25	16.75	75	15 0
21	17.87½	17.56¼	16.93¾	77	12 6
22	18.00	17.87½	17.12½	77	10 0
23	18.00	17.87½	17.12½	78	15 0
24 .....	.....	.....	.....	.....	.....
25 .....	.....	.....	.....	.....	.....
26	18.43¾	18.31¼	17.62½	79	15 0
27	18.75	18.56¼	17.87½	81	5 0
28	18.93¾	18.81¼	17.93¾	80	12 6
29	18.93¾	18.75	17.93¾	79	7 6
30	18.87½	18.62½	17.75	77	0 0
Highest	19.00	18.87½	18.00	81	5 0
Lowest	16.50	15.80	15.12½	69	7 6
Av'ge.	17.431	17.092	16.479	75	1 1

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37½	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.27	15.73	14.44	.....
June	12.63	17.43	15.08	14.15	.....
July	12.72	17.37	14.77	13.73	.....
Aug.	12.70	17.61	15.79	12.68	.....
Sep.	12.57	17.69	16.72	12.44	.....
Oct.	12.47½	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av.	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	.....
June	12.55	17.29	14.85	13.81	.....
July	12.62½	17.35	14.57	13.49	.....
Aug.	12.57½	17.60	15.68	12.41½	.....
Sep.	12.39	17.67	16.55	12.09	.....
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50½	14.47	12.93	.....
Av.	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of **Casting Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.33	14.18	16.48
May	12.08	16.01	15.45½	14.00	.....
June	12.40	17.08	14.72	13.65	.....
July	12.49½	17.09	14.40½	13.34½	.....
Aug.	12.42	17.35	15.50	12.27	.....
Sept.	12.23	17.51	16.37½	12.00	.....
Oct.	12.21	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56½	17.34	14.22	12.83½	.....
Av.	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since September 1, 1911 are given in the following table together with the price of Lake copper on the same dates:

1914—	Sheet Copper, Lake Copper.	
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19 ...	17.00	12.25
November 23 ...	17.50	12.62½
December 1, ...	18.00	12.90
December 15 ...	18.50	13.50
1915—		
January 16	18.75	13.75
January 21	19.00	14.12½
January 25	19.50	14.37½
January 29	19.75	14.62½
March 22	20.25	15.12½
March 25	20.50	15.43¾
March 27	20.75	15.75
April 8	21.00	16.50
April 13	21.25	16.62½
April 14	21.50	16.75
April 17	22.00	17.00
April 19	22.50	17.62½
April 22	23.00	18.00
April 28	24.00	18.93¾

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914.	1915.
January	31,229	25,026	26,018	26,19
February	31,894	26,792	34,654	15,587
March	27,074	42,428	46,504	50,748
April	22,591	33,274	35,079	36,822
May	22,584	38,601	32,077	.....
June	26,669	28,015	35,182	.....
July	26,761	29,596	34,145	.....
August	29,526	35,072	46,509	.....
September	25,572	34,356	49,402	.....
October	25,020	29,339	24,514	.....
November	19,141	29,758	24,399	.....
December	29,474	30,653	22,166	.....
Total	327,965	382,810	460,229	71,924

COPPER AND LEAD

trades are almost certain to show great improvement in the future.

The American statistical position is pure guesswork, as there is no prospect of the revival of producers statistics that were abandoned at the outbreak of the war. Up to the present there is not the slightest doubt however, but that stocks in producers' hands have been greatly depleted.

To sum up, the situation seems a sound one in view of the certainty of continued war demand, well sold up conditions of the producers, and an improving home consumption. The only doubtful feature is, has the price, in the excitement and perhaps exaggeration of these war demands and with an increased production to be taken care of, gone ahead of the procession? But that copper is to remain at a high basis while the war lasts no one can doubt.

There is a note of warning, however, in the fact that total exports for the month of April were only 16,822 tons as against 30,148 tons last month and 35,079 tons April a year ago.

Reports current on or about April 22d that Great Britain was in control of the supplies outside of Germany is not true. England controls the copper she seized and has made special arrangements as to the sale of it.

American producers cannot ship any copper to Germany, but they can ship freely to neutral countries provided the copper goes to consumers, and Great Britain will protect them on all such shipments. In many respects our producers and exporters are better off now than when the war started. There have however, undoubtedly been some difficulties in securing freight room, and this may explain the falling off in export shipments in April. It is expected that the May exports will show very favorably.

Waterbury Copper Averages.

The Waterbury averages for the month of April, 1915, were as follows:

	Cents.
Lake Ingot Copper	18.50
Brass Mill Spelter	13.85

LEAD IN APRIL.

The lead market, compared with the sensational movement of the other metals has been a very uninteresting affair, and the reason for this has been that the metal does not enter into modern war munitions to anything like the extent commonly supposed, also that any increase in that direction is offset by the decrease in the large industrial uses that have accompanied the recent unsettled business conditions. Also the output has not been to any extent curtailed, the principal sources of production not having been affected by the war.

The month opened with \$1 per ton advance in the Trust price to 4.20c New York, 4.12½c East St. Louis, and the price has remained unchanged during the entire month. There has been a good and improving domestic demand, and producers have sold largely for future deliveries and are in comfortable shape, but throughout the month lots from second hands (resale of previous purchases) have kept the spot market for 25 to 50 ton lots at times a fraction under the Trust price.

LEAD PRICES IN APRIL.

	New York.*	St. Louis.	London.
Day.	Cts.	Cts.	£ s d
1	4.20	4.12½	22 7 6
5	4.22½	4.15	.....
6	4.22½	4.15	22 0 0
7	4.22½	4.15	22 0 0
8	4.22½	4.15	21 15 0
9	4.22½	4.15	21 10 0
12	4.20	4.12½	20 3 9
13	4.17½	4.12½	20 16 3
14	4.17½	4.10	20 16 3
15	4.17½	4.10	20 15 0
16	4.17½	4.10	20 7 6
19	4.17½	4.10	20 8 9
20	4.17½	4.10	20 10 0
21	4.17½	4.07½	20 13 9
22	4.17½	4.07½	20 17 6
23	4.17½	4.07½	21 2 6
26	4.17½	4.10	21 10 0
27	4.17½	4.10	21 6 2
28	4.17½	4.10	21 5 0
29	4.17½	4.10	21 5 0
30	4.17½	4.10	21 1 3
Highest ...	4.22½	4.15	22 7 6
Lowest ...	4.17½	4.07½	20 3 9
Average ...	4.189	4.112	21 2 4

* Outside market.

WORLD'S COPPER PRODUCTION.

Compiled by Henry R. Merton & Company, Ltd., London.

(In tons of 2,240 pounds).

	1914.	1913	1912.	1911.	1910.	1909.	1908.	1900
Africa:								
Katanga	10,000	6,790	2,345	1,000	.....	.....	.....	.....
Cape Co.	3,455	3,220	3,870	4,180	4,405	4,645	5,025	4,420
Namaqua	2,300	2,500	2,500	2,500	2,500	2,300	2,300	2,300
Sundries	*8,000	10,000	7,655	9,000	8,300	8,000	415	.....
Total	23,755	22,510	16,370	16,980	15,205	14,945	7,740	6,720
Argentina								
.....	.....	115	330	1,020	300	600	155	75
Australasia								
.....	37,000	46,580	47,020	41,840	40,315	34,400	33,940	27,020
Austria								
.....	*4,000	3,765	3,860	2,440	2,130	1,615	1,175	865
Bolivia—Coro-Coro								
.....	2,700	3,600	1,850	1,800	2,500	*2,000	*2,000	2,100
Canada								
.....	33,810	34,365	34,710	24,930	25,715	24,105	20,535	8,500
Chili								
.....	35,145	39,385	37,305	20,595	35,235	35,785	29,165	25,700
Cuba								
.....	6,525	3,325	4,325	3,695	3,475	2,960	.....	.....
England								
.....	*400	420	300	400	450	435	715	650
Germany—Mansfeld								
.....	.....	19,980	20,180	20,520	19,995	18,715	19,565	18,390
Other German	*30,000	4,930	5,040	1,490	4,715	3,740	2,595	2,020
Hungary								
.....	*400	305	100	85	110	120	150	490
Italy								
.....	1,600	1,600	2,300	2,600	3,220	2,725	2,950	2,955
Japan								
.....	67,000	72,000	65,500	55,000	46,000	47,000	35,910	37,840
Mexico—Boleo								
.....	11,300	12,795	12,450	12,165	12,795	12,230	10,185	11,050
Other Mexican	23,580	39,185	60,005	48,740	48,720	44,095	54,255	*11,000
Newfoundland								
.....	.....	.....	540	1,155	1,080	1,380	2,280	1,900
Norway—Sulitelma								
.....	4,725	4,610	4,755	3,590	4,925	4,295	3,195	2,220
Other Norwegian	7,125	7,000	6,225	5,835	5,500	4,785	3,110	1,715
Peru								
.....	22,515	25,985	26,065	28,050	26,945	16,000	8,625	8,220
Russia								
.....	31,435	33,240	33,010	25,310	22,310	17,750	8,700	6,740
Servia								
.....	*4,000	6,275	7,240	6,885	4,845	4,480	.....	.....
Sweden								
.....	1,000	1,000	1,500	2,000	2,000	2,000	550	450
Spain and Portugal—								
Rio Tinto	21,515	36,320	39,925	33,385	33,575	35,370	32,280	35,702
Tharsis	3,600	3,220	3,375	3,395	3,495	4,355	4,345	7,965
Mason & Barry ..	2,265	3,135	3,540	2,920	2,955	2,365	2,720	3,460
Sevilla	1,435	1,510	1,390	1,530	1,630	1,820	1,280	1,460
Other mines	7,700	9,650	10,700	9,700	8,600	8,275	4,185	4,255
Total	36,515	53,835	58,930	50,930	50,255	52,185	44,810	52,872
U. S. of America—								
Calumet & Hecla ..	20,000	20,000	35,000	35,000	35,000	40,000	37,950	34,715
Other Lake	50,130	51,175	68,405	61,615	63,840	61,450	59,820	54,596
Montana	103,835	127,385	138,055	121,410	127,785	140,105	142,490	114,144
Arizona	167,130	178,505	159,800	134,185	133,755	130,375	99,490	49,447
Other States	165,930	170,140	153,100	331,655	124,555	118,350	49,370	40,800
Total	507,025	547,205	554,360	483,865	484,535	490,280	389,120	263,502
Turkey								
.....	*500	500	500	1,000	600	800	700	520
Venezuela								
.....	1,030	1,250	1,340	.....	.....	.....	.....	.....
Grand total								
.....	893,085	984,860	1,006,110	871,920	864,275	839,425	682,125	479,514

* Estimated.

TIN.

TIN IN APRIL.

The tin market in April almost duplicated the sensational fluctuations of last August that followed the outbreak of war. Opening at 48½c for spot, the market was quiet and declined to 47½c on April 6th, but the following day became completely upset and disturbed over the realization that great difficulties might attend shipments of tin from abroad and deliveries to buyers here. The British Government had put an embargo on tin, March 18th, in order to stop large shipments that were being made to Scandinavia from London, and the final destination of which was probably Germany. It was, however, believed that shipments to America would not be interfered with and that licenses would be freely granted, the tin being consigned to the British Consul here. But at this time, about April 7th, it developed that in order to get the release of the tin from the British Consul, the importer would have to sign a guarantee stating the consumer to whom he had previously sold, also the original contracts and documents as evidence of the sale, and the consumers to whom he had previously sold would have to supply a guarantee that the tin delivered them was solely for their own manufacturing purposes, and that they would not execute any orders to be sent directly or indirectly to any country at war with Great Britain.

It was realized if these instructions had to be complied with, it would probably cause a good deal of difficulty and delay, and as no arrangement had been made for the delivery to jobbers on stock purposes it would abolish the spot market, as no dealer could get any tin until he had first furnished the name of the consumer to whom he had sold it no matter how small the quantity, and who would have to give these necessary guarantees. It could be seen at a glance that this would make for chaos. Importers and dealers therefore, not knowing where they were at became very nervous about entering into any selling obligations, and in five days thereafter the price had advanced 9c a pound to 57c.

The New York Metal Exchange through their Tin Committee came to the relief of

the situation, and opened negotiations with the British Authorities at Washington to clear up what promised to be a most serious state of things, and to evolve plans by which the wishes of the British Government could be carried out without demoralization to the trade. Their efforts were favorably received, and there being no reason to believe the matter would not be cleared up, (which later proved to be the case), the market rapidly began to assume less excited and strained conditions, and a decline began which was continued from 57c on April 13th to 39½c at the end of the month.

The object of the British embargo is to prevent tin originating in their own coun-

TIN PRICES IN APRIL.

	New York.	— London —					
Day.	Cents.	Prompts.			Futures.		
		£	s	d	£	s	d
1	48.50	168	0	0	166	0	0
2							
3							
4							
5	48.00						
6	47.50	166	10	0	165	0	0
7	48.00	168	0	0	166	10	0
8	53.00	170	0	0	169	0	0
9	56.00	169	0	0	167	10	0
10							
11							
12	57.00	169	15	0	168	15	0
13	57.00	171	0		169	0	0
14	55.00	169	10	0	168	15	0
15	54.00	167	10	0	167	0	0
16	52.50	165	0	0	164	10	0
17							
18							
19	50.00	167	10	0	167	10	0
20	46.00	167	0	0	167	0	0
21	44.00	164	5	0	164	15	0
22	42.50	163	5	0	164	0	0
23	42.50	165	0	0	165	15	0
24							
25							
26	42.50	165	5	0	166	0	0
27	42.00	164	10	0	165	5	0
28	41.50	163	10	0	164	10	0
29	40.50	160	0	0	162	7	6
30	39.50	159	10	0	161	10	0
Highest	57.00	171	0	0	169	0	0
Lowest	39.50	159	10	0	161	10	0
Average	47.976	166	4	6	166	0	7

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.					
	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,447
May	15,938	14,345	13,710	17,862	.....
June	16,605	12,920	11,101	16,027	.....
July	16,707	13,346	12,063	14,167	.....
Aug.	16,619	11,285	11,261	14,452	.....
Sept.	16,672	13,245	12,943	14,613	.....
Oct.	14,161	10,735	11,857	10,894	.....
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	4,968
May	4,965	4,310	5,760	6,160	6,900	.....
June	4,120	5,050	4,290	4,820	5,870	.....
July	5,040	4,660	4,580	4,770	4,975	.....
Aug.	5,700	4,680	5,210	6,030	3,315	.....
Sept.	4,220	5,150	5,430	5,160	4,973	.....
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	4,300
May	3,600	3,400	4,250	3,250	3,800	.....
June	5,000	2,900	2,850	3,800	3,650	.....
July	3,800	4,300	5,150	3,900	3,900	.....
Aug.	3,700	3,800	4,300	3,600	2,900	.....
Sept.	3,300	4,200	3,600	3,100	3,600	.....
Oct.	3,350	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	April.	March.	Apr.
	1915.	1915.	1914.
Straits shipments			
To Gr. Britain..	1,865	4,295	3,175
" Continent ..	1,295	1,120	818
" U. S.	2,110	1,555	975
Total from Straits	5,270	4,970	4,968
Australian shipments			
To Gr. Britain ...	200	200	230
" U. S.	nil	nil	nil
Total Australian	200	200	230
Consumption			
London deliveries	1,667	2,754	1,286
Holland deliveries	684	*2,150	1,390
U. S.	3,200	3,200	4,300
Total	5,548	8,104	6,986
Stocks at close of month.			
In London—			
Straits, Australian	3,598	3,407	3,627
Other kinds	1,846	2,123	2,920
In Holland	55	nil	976
In U. S. excl. Pacific	3,041	3,005	2,538
Total	8,540	6,545	10,056
Straits afloat, close of month			
To London	2,215	3,264	3,554
Banca and Billiton			
To London	600	649	184
Total London ..	2,915	4,012	3,737
To United States			
Straits	3,605	3,780	
Banca	725	1,550	
Total U. S.	4,330	5,330	1,654
Grand total ..	7,245	9,122	5,391
	Apr. 30.	Mar. 31.	Apr. 30.
Total visible	1915.	1915.	1914.
Supply	15,785	15,467	15,447

* Includes 2,000 tons delivered from Netherland Trading Society stock during Feb.

STRAITS TIN PRICES IN NEW YORK.

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.90
Apr.	42.20	44.02	49.12	36.10	47.97
May	43.10	46.12	49.14	33.30	
June	46.16	47.77	44.93	30.65	
July	42.96	44.75	40.39	31.75	
Aug.	43.45	45.87	41.72	50.59½	
Sept.	39.98	49.18	42.47	32.79	
Oct.	41.21	50.11	40.50	30.39½	
Nov.	43.13	49.90	39.81	37.50	
Dec.	44.97	49.90	37.64	33.60	
Year	42.68	46.43	44.32	35.70	

TIN.

try or in their own possessions (the Straits Settlements, Australia and South Africa) from reaching the enemies of the Allies whether in the form of the metal or manufactured commodities, hence all shipments to America are consigned to the British Consul General, and are now only released after the signing of certain guarantees, copies of which we give at the end of this article. Under the arrangements now in force there is no reason why any bona fide consumer should not get all the tin he wants for industrial purposes in the United States, or the jobber likewise for the supplying from store stocks the ordinary jobbing and retail trade.

All other conditions except those attending the importation and distribution of tin have been ignored during the month. There has been a complete change in the statistical position in America from acute scarcity to full normal stocks in consequence of arrivals at 4,300 tons in April at Atlantic ports and 1,100 tons at Pacific ports, and deliveries into consumption of 3,200 tons, leaving a stock in New York on May 1st of 3,000 tons. The American and European statistics show an increase in the visible supply of 318 tons for the month of April.

If no new difficulties are experienced in the future regarding import and distribution of the metal, the outlook would seem to indicate quieter and more normal conditions in the future. If this is to be so, the extraordinary differences between the spot price of tin in New York and the price in London lately current are certain to disappear, and the outlook favors a steady market.

It is interesting to note that tin, unlike copper, spelter and antimony, does not enter to any extent into war munitions, and has shown in America a heavy falling off in consumption. American deliveries for the four months of this year have decreased 3,575 tons, as compared with the same period last year. We give below copies of the tin guarantees mentioned in this article:

Guarantee to be Signed by the Importer.

His Britannic Majesty's Consul-General,
New York.

TIN.

I beg to inform you that I

Ex s.s.....have sold the tin, chloride of tin, tin ore (a), specified in the margin to

Packages

whose guarantee you will find on the back hereof. I will produce to you at any time on demand the original contracts or other documents evidencing the sale.

Weight

Quality In consideration of your consenting to the delivery to them of the said tin, chloride of tin, tin ore (a), I undertake that I will not, directly or indirectly,

Marksat any time so long as the present war continues, export any tin, chloride of tin, or tin ore from the United States, except to the British Dominions, and that I will not sell any tin, chloride of tin, or tin ore for exportation without satisfying myself that it is not intended for exportation from the United States, except to the British Dominions.

Guarantee to be Signed by the Consumer.

His Britannic Majesty's Consul-General,
New York.

In consideration of your consenting to the delivery to us of the tin, chloride of tin, tin ore (a), specified on page 1, which we have purchased from

we

hereby give you the following undertaking, which shall remain in force so long as Great Britain is at war with any European Power:—

We will not export from the United States any tin, chloride of tin, or tin ore, whether the same has been imported from the British Dominions or not, otherwise than to the United Kingdom or to a British Possession.

We will not sell the tin, chloride of tin, tin ore (a), now delivered by you to any dealer or other person or persons in the United States, but will use it for our own manufacturing purposes.

**Guarantee to be Signed by Jobbers Enabling
Them to Carry Small Stocks for
Jobbing and Retail Orders.**

His Britannic Majesty's Consul-General,
New York

In consideration of your consenting to the delivery to us of the tin, chloride of tin, tin ore specified on page 1 which we have purchased from we hereby give you the following undertaking,

which shall remain in force so long as Great Britain is at war with any European Power:

We will not export from the United States any tin, chloride of tin, or tin ore, whether the same has been imported from the British Dominions or not.

We will not sell any tin, chloride of tin, or tin ore to any person or persons in the United States without satisfying ourselves that it is intended to be used exclusively for industrial purposes in the United States and will not be exported

**Guarantees Under Which the British Authorities Propose to Release Arrivals
of Pig Tin in U. S. of America, as Result of Embargo Placed on the
Metal From Great Britain and British Possessions.**

Form No. 1.

Tin.
Ex s.s.....
Packages
Weight
Quality
MARKS

His Britannic Majesty's Consul-General, New York.
In consideration of your consenting to the delivery to us of the tin, chloride of tin, tin ore specified in the margin, we, hereby give you the following undertaking, which shall remain in force so long as Great Britain is at war with any European Power:—

We will not export from the United States any tin, chloride of tin, or tin ore, whether the same has been imported from the British Dominions or not, otherwise than to the United Kingdom or to a British Possession.

We will not sell the tin, chloride of tin, tin ore, now delivered by you to any dealer or other person or persons in the United States, but will use it for our own manufacturing purposes.

.....
(Importer's signature.)

Form No. 2.

Tin.
Ex s.s.....
Weight
Quality

His Britannic Majesty's Consul-General, New York.
I beg to inform you that I have sold the tin, chloride of tin, tin ore specified in the margin to whose guarantee you will find on the back hereof. I will produce to you at any time on demand the original contracts or other documents evidencing the sale. In consideration of your consenting to the delivery to them of the said tin, chloride of tin, tin ore I undertake that I will not, directly or indirectly at any time so long as the present war continues, export any tin, chloride of tin or tin ore from the United States, except to the British Dominions and that I will not sell any tin, chloride of tin, or tin ore for exportation without satisfying myself that it is not intended for exportation from the United States, except to the British Dominions.

.....
(Importer's signature.)

His Britannic Majesty's Consul-General,
New York.

In consideration of your consenting to the delivery to us of tin, chloride of tin, tin ore, which we have purchased from

we hereby give you the following undertaking which shall remain in force so long as Great Britain is at war with any European Power:

We will not export from the United States any tin, chloride of tin or tin ore whether the same has been imported from the British Dominions or not, otherwise than to the United Kingdom or to a British Possession.

We will not sell the tin, chloride of tin, tin ore now delivered by you, to any dealer or other person or persons in the United States, but will use it for our own manufacturing purposes.

.....
(Consumer's signature.)

SPELTER.

SPELTER IN APRIL.

The spelter market in April has been extremely sensational. Opening at 9.30c f.o.b. East St. Louis there was a continuous daily advance without a single recession, until 13.75c was reached at which the month closed, an advance in that short time of nearly 50% in price.

Early in the month there were indications that strenuous efforts were being made on the part of producers and their agents to keep prices from advancing, partly on the fear that the market might get into an unsound condition, but principally with a view of being able to negotiate favorable purchases of ore. But events proved that the situation was a more serious one than anybody imagined, and that the requirements of the metal for war munitions here and abroad had been not fully realized. Stocks abroad and in America were proved to be depleted, and on heavy inquiries and sales 10 $\frac{3}{4}$ c was reached by the middle of the month. About this time it developed that many of the galvanizers were badly off for supplies and were becoming excited over the prospect of not securing same. Meanwhile war munition demand and the advancing market abroad made a condition of two buyers to every single seller, resulting in rapid daily advances, and extraordinary prices being paid for Brass Special and the higher grades, and for deliveries well into the future.

The demand from the brass trade has exceeded all expectations and being connected with war orders it has not been a matter of the price but of securing the material in the quantities required. The amount of spelter required for these munition orders has been a revelation to the trade, it being apparent that the metal is used for such orders in a higher proportion than in the ordinary brass mixture.

With the French and Belgian supply cut off and stocks depleted the demand seems

to exceed the capacity to supply, in spite of the fact that the American production is believed to be at the rate now of 450,000 tons per year, or 100,000 tons greater than last year. As the brass mills are generally booked up to their capacity for months to come, and no end of the war

demand in sight, it is difficult to see any relief in the way of extremely high prices. Of course, no one will carry any stocks, at present basis, but there is no reason to believe but that every pound of spelter we can produce will be wanted for months to come.

The advance abroad has been quite as sensational as here. Opening at £43 the market, after continuous and uninterrupted advances closed at £64 in London, being an average advance of £1 per day for the 20 days in which there were sessions on the London Metal Exchange.

SPELTER PRICES IN APRIL.

	New York.	St. Louis.	London.
Day.	Cts.	Cts.	£ s d
1	9.62 $\frac{1}{2}$	9.30	43 0 0
2 .....	.....	.....	.....
3 .....	.....	.....	.....
4 .....	.....	.....	.....
5	9.62 $\frac{1}{2}$	9.37 $\frac{1}{2}$	.....
6	9.75	9.50	42 5 0
7	9.87 $\frac{1}{2}$	9.62 $\frac{1}{2}$	42 15 0
8	9.87 $\frac{1}{2}$	9.62 $\frac{1}{2}$	43 10 0
9	10.00	9.75	43 10 0
10 ....	.....	.....	.....
11 ....	.....	.....	.....
12	10.00	9.87 $\frac{1}{2}$	43 10 0
13	10.00	9.87 $\frac{1}{2}$	44 10 0
14	10.37 $\frac{1}{2}$	10.12 $\frac{1}{2}$	45 10 0
15	11.00	10.50	46 0 0
16	11.12 $\frac{1}{2}$	10.87 $\frac{1}{2}$	46 0 0
17 ....	.....	.....	.....
18 ....	.....	.....	.....
19	11.50	11.12 $\frac{1}{2}$	46 10 0
20	11.50	11.25	48 0 0
21	12.12 $\frac{1}{2}$	11.87 $\frac{1}{2}$	49 0 0
22	12.50	12.12 $\frac{1}{2}$	51 0 0
23	12.75	12.37 $\frac{1}{2}$	53 10 0
24 ....	.....	.....	.....
25 ....	.....	.....	.....
26	13.50	13.25	57 15 0
27	14.00	13.75	59 0 0
28	14.50	14.00	64 10 0
29	14.12 $\frac{1}{2}$	13.75	64 0 0
30	14.00	13.75	64 0 0
Highest ..	14.50	14.00	64 10 0
Lowest	9.62 $\frac{1}{2}$	9.25	42 5 0
Average ..	11.512	11.223	49 17 9

REVIEW OF THE JOPLIN ORE MARKETS.

The market for zinc blende ore for the month of April was unsettled, especially during the first part of the month when the demand for ore was unsteady and prices were being forced downward by the smelters who succeeded in getting the price as low as \$48 per ton for second grade ore, this was the lowest mark reached during the entire month. The general base range the first part of the month for zinc blende ore was \$55 to \$60, the price rose at the end of the month to \$57 to \$65, the increase in the price as recorded took place during the last week of the month when the market became much stronger and sales increased. The increase in the price paid occurring at the time the spelter market was establishing new high record prices the market being quoted at St. Louis at 12c to 12½c for spot metal. The rise in the price of zinc ore was not caused so much by the increased price for spelter as from the fact that the smelters desire a greater tonnage of high grade ore from the Joplin district.

The sales of zinc blende ore for the month reached a total tonnage of 23,822 tons or an average tonnage by weeks of 5,955 tons per week at an average price for the month of \$57.25 per ton. The total sales for the year are 82,863 tons at an average price of \$59.04 per ton, these figures in comparison with 1914 figures covering the same period show 1,972 tons less ore sold and the average price was \$20.56 less per ton. The market for blende ore the last two weeks shows a much stronger demand and it is very probable that the buying will continue strong for some weeks to come.

The market for calamine ore for the month was good, the demand at all times was strong, the smelters buying this ore wherever it could be secured. The prices offered the first part of the month were \$30 to \$36 per ton, rising gradually to a base range of \$32 to \$39 per ton at the last of the month. The sales of this ore for the month total 1,414 tons at an average price of \$32.94 per ton, the total sales for the year are 6,315 tons at an average price of \$36.14 per ton, these figures are slightly greater than the figures covering the same period in 1914.

The period of the year just past always records a smaller tonnage of calamine ore produced than any other equal period of the year, this is because of the fact that most of the silicate mines in the district are not housed in, or protected very well, from bad weather. The sales of calamine ore each week cover practically all of the production, there is very little, if any, surplus of this ore held in the district.

The estimated surplus stocks of zinc blende ore in the bins of the producers is 14,195 tons, this is a decrease of 3,950 tons under that shown the previous month, this decrease is the result of the heavier buying during the last two weeks of the month when the buyers got into the field and bought larger tonnages of ore. The production of zinc blende continues good, all of the mines in the district are operating full time at capacity and are turning out their maximum tonnage, with the continuation of good market conditions and fair prices for ore the production of zinc ore will undergo a steady increase for sometime to come. It is very probable that the production for the entire district will exceed 6,000 tons per week in the next 30 to 60 days.

Lead ore the past month was in good demand, the buyers purchasing ore wherever available, there was one lot of surplus ore containing 1,200 tons sold in addition to the usual production, the price for this ore was \$50 to \$51 per ton throughout the entire month. The total sales for the month were 3,488 tons at an average price of \$50.33 per ton, the total sales for the year are 12,907 tons at an average price of \$47.81 per ton. The total sales of lead ore for 1915 are 2,116 tons less than for the same period in 1914, although the demand for lead ore has always been good the production for the year has been light, there has also been a tendency on the part of the producers to hold their ore for better prices, when the lead ore market advanced to \$51 per ton nearly all of the producers were willing to sell their ore each week. The estimated surplus of this ore in the bins of the producers is 1,145 tons, showing a slight decrease under the surplus of the previous month.

ANTIMONY ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	32.07
May	9.48	8.00	8.77	7.29	.....
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av..	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Hallett's antimony in New York.

	1911	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	29.41
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av..	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY.

Average monthly price of Chinese and Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93½
Apr.	8.34	6.87	7.82	5.82	23.97
May	8.06	6.98	7.75	5.78	.....
June	7.38	7.07	7.62	5.62½	.....
July	7.32	7.37	7.55	5.44	.....
Aug.	7.22	7.58	7.48	13.05	.....
Sep.	7.13	8.00	7.31	9.79½	.....
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Av..	7.48	7.63	7.43	8.53½	.....

ALUMINUM and SILVER PRICES IN APRIL.

Day.	Aluminum.	Silver	
	New York.	New York.	London.
	Cents.	Cents.	Pence.
1	18.75	50	23½
2	.....	.....	.....
3	.....	49¾	.....
4	.....	.....	.....
5	18.75	50	.....
6	18.75	50¼	23½
7	18.75	50¼	23¾
8	18.75	50¼	23½
9	18.75	50½	23½
10	.....	50½	23½
11	.....	.....	.....
12	18.75	50½	23½
13	18.75	49¾	23½
14	18.75	49¾	23½
15	18.75	50	23½
16	18.75	49¾	23½
17	.....	50	23½
18	.....	.....	.....
19	18.75	50½	23¾
20	18.75	50¾	23¾
21	18.75	50½	23½
22	18.75	50½	23½
23	18.75	50½	23½
24	.....	50½	23½
26	18.75	50¾	23½
27	18.87½	50½	23½
28	19.25	50½	23½
29	19.25	50½	23½
30	19.37½	50½	23½
Highest	19.50	50¾	23½
Lowest	18.75	49¾	23½
Average	18.83	50.25	23.709

ALUMINUM AND SILVER PRICES.

	New York			Silver		
	Aluminum—	Aluminum—	Aluminum—	Silver—	Silver—	Silver—
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.93	57.56	48.89½
Feb.	26.20	18.80½	19.20	61.64	57.50½	48.48
Mar.	26.72	18.30	18.95	57.87	58.07	50.24
Apr.	26.91	18.08	18.83	59.49	58.52	50.25
May	25.95	17.93	.....	60.36	58.18	.....
June	24.79	17.82	.....	58.99	56.47	.....
July	23.34	17.59	.....	58.72	54.68	.....
Aug.	22.73	20.38	.....	59.29	54.34	.....
Sep.	22.00	19.28½	.....	60.64	53.29	.....
Oct.	20.32	18.25	.....	60.79	50.65	.....
Nov.	19.49	18.83	.....	58.99	49.10	.....
Dec.	18.85	19.02	.....	57.76	49.38	.....
Av.	23.63	18.59½	.....	59.79½	54.81	.....

ANTIMONY.

ANTIMONY IN APRIL.

The antimony market was in a very quiet state during the first half of April and prices remained steady at about 21c for the Chinese and Japanese grades. But around the middle of the month some very large orders were placed by shrapnel makers both for spot and future deliveries, which had the effect of stirring up the market, and an advance was started which has carried prices well above 30c per pound.

It is no exaggeration to say that a larger volume of business was done during the last half of April than in any other similar period of time, and it is also no exaggeration that 75% of the buying came from consumers. The shrapnel and ammunition makers were the heaviest buyers but other consumers took considerable amounts and the market nearly sold out by the end of the month.

China and Japan were quite willing to sell a few weeks ago when the market was 10c per pound lower than it is now, and they did sell many hundred tons for May, June, July and August shipments at between 19c and 20c in bond, but for more than two weeks there has not been a single offer

from the East. In fact, it is said that Japan has bought antimony in this market and is still negotiating for further quantities. This combined with the domestic buying explains the rapid rise in values.

Antimony is very dear at present levels but it is a metal for which there is no substitute and with the enormous demand for munition purposes it is difficult to say where the price will go unless China and Japan find means to increase their output. The situation would have been still worse if China and Japan had gone to war but fortunately that seems to have been avoided.

The record of the price fluctuations is published below.

ANTIMONY PRICES IN APRIL.

Day.	Chinese and		
	Cooksons.	Halletts.	Japanese
	Cts.	Cts.	Cts.
1	30.00	28.00	21.25
2			
3			
4	.....	.....	.....
5	30.00	28.00	21.25
6	30.00	28.00	21.25
7	30.00	28.00	21.25
8	30.00	28.00	21.25
9	30.00	28.00	21.25
10	.....	.....	.....
11	.....	.....	.....
12	30.00	28.00	21.25
13	30.00	28.00	21.50
14	30.00	28.00	21.50
15	30.00	28.00	21.87 1/2
16	31.50	29.00	22.00
17	.....	
18	.....	.....
19	32.50	30.50	23.50
20	32.50	30.50	24.00
21	32.50	32.00	24.50
22	33.50	32.50	25.25
23	33.50	32.50	25.50
24			
25	.....	.....	.....
26	34.50	33.00	26.00
27	35.00		27.50
28	35.00		28.00
29	36.00		30.50
30	37.00		33.00
Highest	37.00	33.00	33.00
Lowest	30.00	28.00	21.25
Average	32.07 1/2	29.41 2/3	23.97

COMPOSITE METAL PRICES.

Computation for May 3, 1915.				
Pounds.	Metal.	Price.	Extension.	
2 1/2	Spelter (St. Louis)	13.75	34.375	
4	Lead (St. Louis)	4.10	16.400	
3	Copper (Electro)	18.50	55.500	
1 1/2	Tin (New York)	40.25	20.125	
10 pounds			126.400	
One pound			12.640	
Monthly averages.				
	1912.	1913.	1914.	1915.
January	9.778	10.987	9.105	8.836
February	9.677	10.260	9.294	9.878
March	9.886	10.024	9.026	10.977
April	10.277	10.198	8.844	11.977
May	10.468	10.163	8.668	.....
June	11.014	9.648	8.431	.....
July	11.043	9.398	8.345	.....
August	11.092	10.025	9.111	.....
September	11.575	10.350	8.067	.....
October	11.596	10.029	7.500	.....
November	11.372	9.590	7.873	.....
December	11.219	9.053	8.400	.....
Year	10.750	9.977	8.555	.....

TRADE NOTES.

American Zinc Company of Tennessee, Mascot, Tenn., H. S. Kimball, president, has authorized the building of a \$75,000 addition to its concentration mill.

The Clinton Fire Extinguisher Company, Sidney, O., which recently increased its capital stock from \$5,000 to \$10,000 will install new machinery for the manufacture of the babcock type of liquid extinguishers. William Shine is president and manager.

The C. D. S. Tool & Specialty Company, 54 Cummings street, Irvington, N. J., has been incorporated with a capital stock of \$10,000, by Harry H. Picking, 525 Main street, East Orange, N. J.; Gordon Grant, and Charles O. Geyer. The company will continue business at its present address.

The Simmons Mfg. Company, Kenosha, Wis., brass and iron beds, springs, etc., has broken ground for a large factory addition and will spend \$250,000 in otherwise improving and re-equipping its plant for the utilization of a new method of bed manufacture consisting of seamless drawn steel tubing and electric welding.

The Premier Electric Company, Ltd., Montreal, has been incorporated with a capital stock of \$49,000 to manufacture automobiles, etc. Louis A. David, L. E. A. D. Mailhot, S. H. R. Bush, John L. Hutcheon and Edward C. Baker, all of Montreal, are the incorporators.

The Brooklyn Bolt & Forging Company, Vandyke and Van Brunt streets, Brooklyn, manufacturer of galvanized pole line hardware, recently incorporated with a capital stock of \$10,000 by E. F. and J. S. Quicke and J. E. Winkler, all of East Stroudsburg, Pa., is building a factory for the manufacture of telephone, telegraph and electric transmission line materials; machine, carriage, lag, stud and track bolts, and street railway track tie rods. A forging and machine shop will be erected for the manufacture of light hammer forgings. The capital stock of the company will probably be increased. Inquiries are out for considerable equipment. The company will also specialize in jobbing galvanizing.

The Delphos Metal Stampings Company, Delphos, O., has been incorporated with a capital stock of \$30,000 to manufacture sheet-metal fence posts and other produces. O. G. Hackendorn, F. Z. Altenberger, Paul J. Snyder, and others, are the incorporators. The J. M. Robinson Mfg. Company is building two large metal-working machines for it.

Bermite Explosives, Ltd., Montreal, has been incorporated with a capital stock of \$200,000 to manufacture ammunition, gun-powders and explosives. Carlton W. Berry, Waterloo, Que.; Charles Watt, Lachine, Que.; Egbert W. Westover, Montreal; Fred-eric T. Enright and Charles M. Cotton, both of Westmount, Que., are the incorporators.

The Ohio Sheet Metal Company, Canton, O., recently incorporated with a capital stock of \$50,000, will manufacture metal ceilings, steel lockers and other sheet metal products. It will occupy the plant formerly used by the Canton Mfg. Company. Among those interested in the new company are J. H. Eller, William H. Gardner, who will be manager, and J. A. Jeffers.

The Van Dorn Iron Works Company, Cleveland, O., has increased its capital stock from \$150,000 to \$350,000 and will enlarge its plant by the erection of a new building, 100x200 ft. The addition will not be built for any particular department, but to provide additional capacity for any department that may need it. Considerable new equipment will be installed.

The development of a new metal known as Titan bronze makes it possible to manufacture drop forged bronze in place of brass castings. The Titan Metal Company, 1124 Real Estate Trust Building, Philadelphia, controls the process of manufacturing the metal, and has granted an exclusive license for the manufacture of finished castings and casting ingots to the Alpha Metals Co., Bellefonte, Pa.

Steward-Skinner Company, Inc., Worcester, Mass., manufacturer of hardware specialties, has leased two floors in the Barsky building and will move to these larger quarters May 1st.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, JUNE 1915

NO. 6

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,

C. S. J. Trench, Secretary and Treasurer.

Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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THE BUSINESS SITUATION.

After ten months of the most stupendous war in the history of the world, with no indications of any end in sight, but rather every prospect of the few remaining countries of any influence including possibly our own country becoming involved, it seems nothing short of marvelous that there is anything to report about business except chaos, and yet from what we are able to learn from the limited means of information available from countries like Germany, Austria, Russia, Turkey and Servia, and the fuller information available about Italy, England and her colonies, there does not appear to be anything approaching what the most conservative imagination might have conceived as to the affect on business in these countries. Poor Belgium has ceased to exist except for name, but we hope to play a part in her restoration, and Japan from her physical situation is but slightly touched. But we find in spite of a loss, in killed, wounded and prisoners of nearly five million men, and loss and destruction of material things which is simply appalling, and which it is quite impossible to estimate, that in these countries at war the greatest business activity exists. Their entire energies and resources are being put at the control of their government cheerfully, patriotism has swept out of

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sight all shades and differences of opinion, and the world sees the inspiring sight of the manhood of these countries offering themselves on the altar of patriotism, and the balance of the inhabitants including the women, cheerfully giving of their substance and services confident in the final triumph of what they believe to be right. As we said before, it is an inspiring sight, and it is impossible to believe that anything but a better state of things can be the outcome and reward of such devotion. This war is to prove a great vivifier of the moral fiber of the world. Our efforts in the past generation to exploit the triumphs of science and increase our own physical ease and comfort, has been largely at the expense of losing our grasp of the real things of life which are not material but spiritual. We believe we are in the birth throes of a better world, which is to be restored through the strengthening and cleansing fires of suffering and self denial and unselfishness. Pity and sympathy for the weak and suffering, a keener sense of right and wrong, a higher standard of moral obligation, and a more frank adjustment of the meum and tuum of personal, social and political life is to be the result, and new standards are to be made and passed on to the coming generation for their future happiness. We are in the birth throes of a better world, and only by this belief can we fail to be swept away from all faith in a beneficent Providence, and that the world has not become an inferno worse than Dante's imagination can picture.

If last summer we could have had a picture before us of what has since taken place in the civilized world, we would have believed it impossible that

to-day we would be as we are, a country enjoying a full measure of prosperity, our factories more busily engaged, our workmen more contented and less distress and poverty than in years. The balance of trade in our favor increasing at the rate of nearly three million dollars per day, the bitterness of labor against capital passing away with a more perfect understanding and realization and a desire to recognize the rights of each in their proper position, and greater confidence and respect for our political and business institutions. And yet this is the position to-day. The road of business, politics, and social life has been to a great extent swept clear of the many obstacles that threatened and impeded us a year ago. Our financial machinery has been put into a position of safety considering what existed before.

Is it any wonder that conservative business men are feeling to-day more encouraged regarding the future than in years, and this in spite of the apprehension that we may have to take a painful part in cleaning up the situation created by the war. Nature stands behind us in the promise of an enormous and profitable crop, and our country stands before the world to-day as the richest and soundest fundamentally, with the greatest promise for the future. In the coming revolution that is to follow the end of the war America must lead, and it will be our own fault if we do not rise to this obligation and responsibility. We believe the next decade will be the most remarkable in business developments this country has ever seen, and that it is to be partly as a result of the disaster that has overtaken Europe, and the heavy load of debt that must, as a result of the war,

EDITORIAL

paralyze to a great extent the progress of our neighbors. But we have the satisfaction of knowing it was not of our making. We have simply fallen heir to an inheritance which through our position has been forced upon us. Let us therefore rise to our opportunities and if we are to enter as the leader of the Commercial World we must forget our provincialities of the past, see to it that the laws and regulations which we permit to go on the statute books are of a nature, which while regulating and keeping in our business efforts in the straight and narrow path giving to all a fair opportunity, still will not be allowed to harass or impede our enterprise.

As regards metals, never in the past has any situation ever existed as we have experienced and are experiencing to-day. The enormous consumption of metals is one of the surprises of the war, and the strange part of it is that so few of the trade foresaw what was coming. Our readers will remember that at the opening of the war we repeatedly laid stress on the fact that war was a large consumer of metals,

and that there was no economy in war, and while the first effects would be to benumb the imagination and upset financial arrangements, it would certainly be followed by the greatest mental excitement and speculation. We must say, however, that what has happened has gone far beyond our expectations.

The advances since the outbreak of the war have been:

Copper, from 12.87½¢ to 20¢.

Spelter, from 4.85¢ to 26¢, market now 23½¢.

Lead, from 3.72½¢ to 7¢.

Antimony, from 5.50¢ to 36½¢.

Tin, from 33½¢ to 65¢, market now 40½¢.

and all the markets are still in a state of nervous excitement.

The iron and steel trade has not participated to any extent, but there has been a steady improvement in operations and price, and we believe this trade is facing a surprising change for the better, which within a year will tax the productive power of the country.

THE STEEL SUIT DECISION.

If the United States District Court for New Jersey had told the public no more than that it regarded the dissolution case against the United States Steel Corporation as "largely one of business facts" those who are familiar with the steel trade would have been able to guess the rest, that the decision was sweepingly and completely in favor of the Steel Corporation. We think that the great majority of those who have followed this necessarily interesting case have felt that the question rested upon whether the court would rest its decision chiefly upon the possible intent of the formers of the Steel Corporation and the power the Steel

Corporation early possessed, or chiefly upon the actual conduct of the Steel Corporation. When the court says the case is "largely one of business facts" the conclusion it reaches are inevitable.

The Steel Corporation of to-day needs protection from some of its friends whose comments upon the decision suggest the idea that it is a vindication of all men who participated in the corporation's formation in 1901. They would like to make out that the Steel Corporation was gendered in purity, conceived in purity and born in purity, while incidentally it has since lived a pure life. That is not true, and every one familiar

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with the facts knows it is not true. If it were true, Judge Gary himself would be a confessed prating time server. Repeatedly, and never more clearly and emphatically than in his presidential address at the recent Institute meeting, he has declared that business needed to be reformed and that business men have been reforming. On the witness stand in this very suit he admitted the existence of wrong doing on the part of his corporation, but asserted that when he became cognizant of such practices he ordered their discontinuance.

What is true is that the Steel Corporation has been living a purer and purer life as it grew older, and the "business facts" which this life has brought about, taken for guidance by the court, resulted in the vindication of the United States Steel Corporation of these latter years. To Judge Gary and his advisers, and not to J. P. Morgan, C. M. Schwab, D. G. Reid et al. must be accorded all the credit that the United States Steel Corporation is now given a clean bill of health under the Sherman law against combinations in restraint of trade.

One portion of Judge Gary's conduct, however, is strictly condemned, that connected with the "Gary Dinners". This is an important fact, and one that must be remembered by business men for their guidance in future.

We think the three most pertinent observations in connection with this new decision under the Sherman law are:

(1) The law is against "combinations in restraint of trade", not against combinations. The fact that some early decisions under the law held that the possession of power to restrain trade was tantamount to its exercise cannot be applied to all cases. If the corporation possessed such power at its birth, years elapsed, during which the "business facts" brought out in the trial showed it did not exercise such power. It is possible that intent and power existed, but of vastly more weight are the business facts that no restraint of trade was practiced. Years ago there were those who

suggested that the corporation was acting well merely because it feared prosecution, and that if a suit were brought and the corporation should win it would then feel free to do as it liked, and make up for lost time in restraining trade. Obviously that was an idle fear, but the present decision, based upon its conduct, does not so much as require an injunction that it shall continue to be good. The corporation, through being "vindicated" is given no power to do things which would have been adjudged illegal if the acts had been committed prior to the bringing of the suit and proved in the suit.

(2) The Sherman law is simple. The only punishments it names are a fine not exceeding \$5,000 and imprisonment not exceeding one year. Dissolution is only a makeshift designed to right an existing wrong. If there is no wrong in existence there is no occasion for dissolution. Assuming for argument that the original American Tin Plate Company consolidated 95% of the tin plate capacity, and the Steel Corporation to-day has 55% of the tin plate capacity the lapse of time has corrected any wrong that may have existed. Dissolution cannot be applied for correction, therefore, and for punishment such a thing would be absurd when the letter of the law is so plain, fine and imprisonment.

(3) In urging that the Steel Corporation possessed the power to restrain trade, and should be dissolved on that account, the Government cited the "Gary Dinners", asserting that so large an interest could make such gatherings effective, while a smaller interest could not. The court dismisses this because the dinners were discontinued before the suit was brought, but points out that the Government can retain jurisdiction in the case as to this point in case a repetition of such a movement is apprehended, while it also points out, what all can readily see, that the newly constituted Federal Trade Commission is competent to act in such matters now.

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THE REASON FOR THE ADVANCE IN THE PRICE OF SPELTER.

By Mr. W. S. Horner—American Rolling Mill Co.

In the middle of July, 1914, spelter was selling at 4.80 cents per pound, East St. Louis, the lowest price in five years. The lowest price in history was about three cents, in 1895. In the early days of August, just after the war started spelter declined to 4.72½. On August 12th, the United States Geological Survey announced its mid-year spelter statistics, showing that the unprecedentedly large stocks of spelter at the beginning of the year had materially increased during the half year. The unsold stocks in the hands of smelters January 1st, 1914, had been reported at 40,659 net tons of 2,000 pounds, while the stocks on July 1st, 1914 were given at 64,039 tons. The consumption of the United States during the twelve months ending June 30th, 1914, was estimated at 291,750 tons, the stocks reported at the close of the period being no less than 22% of this quantity.

During the week preceding the issuing of these statistics spelter had advanced to 5.37½, East St. Louis. Buyers of spelter naturally concluded that the appearance of such extremely unfavorable statistics would operate to depress the market and as prices advanced further they were confirmed in their view that it was unsafe to purchase. On August 27th a high point was reached, 5.95, and then the market started to decline, reaching a low point of 4.60 on October 13th. This price was 20c per 100 pounds lower than the low point of July, and 12½ below the still lower point reached early in August, after the war had begun. The August advance had occupied 23 days while the subsequent decline occupied 46 days, or twice as long.

Thus October was half over before the spelter market reached merely the threshold of the spectacular advance which has lately puzzled and concerned the trade. We cannot intelligently discuss this advance and the causes that may have led to it, without considering the attitudes that buyers and sellers respectively maintained during the advance.

Let us, therefore, pause for a moment

and observe the viewpoints the buyer and seller respectively would occupy at the middle of last October when after ten weeks of war spelter was at a lower price than in the early days of the war or just before the war.

The buyer well remembered the spelter advance of two years earlier, culminating in a price of 7½ cents a pound on September 20, 1912, the highest price in history and three-quarters of a cent above the previous high point, reached in 1907. The 1912 advance had been generally regarded as due chiefly to manipulation. Upon the inception of the European war the buyer had been told that the war would advance spelter because England's supplies from Belgium and Germany would be shut off, but with the example of the ephemeral advance in August and the subsequent decline to a lower point than ever the buyer was disposed to dismiss the subject with the observation that when he had not been fooled on first advance he certainly would not be if there should be another. Presumably it would be simply manipulation.

The sellers, on the other hand, observed that they actually were selling spelter to England, and that the brass makers of New England were buying spelter not merely for prompt delivery but for deliveries far into the future.

A misunderstanding then arose between buyers and sellers, and whether this misunderstanding was encouraged by the sellers is, I think, a debateable question. After the low point of 4.60 was reached on October 13th, the market was subject to frequent and sudden advances, that looked manipulative, with intermediate declines of less extent, until in December a fairly steady market was established at about 5½ c. The majority of buyers, except probably the brass makers, thought the market had been manipulated upwards and were in no mood to buy at prices about a cent a pound above the previous low point.

The buyers eagerly looked forward to the publication of the Geological Survey's

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semi-annual statistics of production of spelter and unsold stocks in the hands of producers, expecting the statistics to show but a small decrease, possibly even an increase in the stocks as compared with the large stocks reported for July 1st, but on January 4th, the United States Geological Survey announced that the usual statistics would not be published, because it had been impossible to obtain figures from some of the producers.

At once the buyers adopted the view that the sellers had large stocks and wished to conceal the fact. Some of the sellers suggested that the stocks were really very small and that it was desired to conceal their smallness until the market had advanced further. If this really was their view, it was a very sensible one, for the market advanced more than four cents a pound in less than two months and if buyers had had confidence in the market they would have been able to cover against a large part of that advance.

It is desirable to trace in some detail the course of prices since the opening of the year. On the last day of December the market stood at $5\frac{1}{2}c$, East St. Louis, less than one cent a pound above the various low points that had been touched successively in July, August and October.

Then changes per month were as follows:

In January advanced	2.20c.
In February advanced	2.55c.
In March declined .....	.95c
In April advanced	4.45c.

This made a total advance in the four months of $8\frac{1}{2}c$ and left the market May 1st at $13\frac{3}{4}c$, about three times the lowest price of 1914 and more than six cents above highest price ever attained prior to this year.

The question assigned to me was "WHY DID SPELTER ADVANCE?" but before attempting to discuss the possible reasons for the advance, it has seemed desirable to show precisely the extent of the advance and also to show how the market behaved during the advance. At times there have been strong suspicions that the advances were manipulated, but viewing the course of the market during the entire period of the war it does not look like a manipulated market. Manipulators desire to create confidence in the minds of the buyers, so that

they will buy. Profits are not realized merely by marking up quotations; there must be actual buying at the advanced figures. The July advance, followed by a still greater decline was precisely the thing to prevent confidence, not to instill it. Again, in a manipulative movement there are usually sharp advances at first and slower advances afterwards as the manipulators approach the point beyond which they cannot go, but in this instance the advances became more rapid as time passed.

I am not prepared to express an opinion whether or not the European war has furnished a sufficient cause for all the advance that has occurred in spelter, but that it has furnished adequate cause for a very considerable advance is beyond question. To avoid complications I shall use as few figures as possible.

The world's production of spelter in 1912 was 1,070,045 net tons, and in 1913 1,093,635 net tons, this not including the production of secondary spelter, from drosses, etc. Of the 1913 production Germany and Belgium made 530,003 tons or no less than $48\frac{1}{2}$ per cent. The war has greatly reduced this production and of what production there is there are no exports. The German Belgian exports were about 145,000 tons to England and about 40,000 tons to other countries before the war, indicating that before the war the spelter consumption of the world outside of Belgium and Germany was about 750,600 tons. The production of the United States in 1913 was 346,676 tons with neither exports nor imports of any consequence.

The condition which the war brought about, then was this, that the world outside of Belgium and Germany had been consuming 750,000 net tons a year of spelter, of which 25% had been drawn from Belgium and Germany, while 46% had been made by the United States. If the United States were to step into the place left vacant by Belgium and Germany and furnish this 25%, it would mean an increase of 55% in her own production.

The actual exports of the United States from July 1st, 1914 to April 1915, were 102,397,404 net tons, for the nine months, but as the movement did not really start until September the exports in the seven months ending with March were at the rate of approximately 170,000 tons a year.

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against the rate of 185,000 tons a year at which Belgium and Germany had previously exported spelter.

The effect of the war upon the consumption of spelter, however, must also be considered. One effect was to reduce very materially the consumption of spelter in the arts of peace.

Great Britain's exports of galvanized sheets, for instance, were 129,239 tons in the seven months August, 1914 to February, 1915, against 612,047 tons in the seven months a year earlier, showing a decrease of no less than 79%. In the United States the actual consumption of galvanized products may possibly not have decreased, but floating stocks of galvanized sheets and other galvanized products have been reduced as much as possible, so that the consumption of spelter itself has been reduced temporarily at least.

On the other hand the war has caused a very large demand for cartridges, involving the consumption of brass, made from approximately two parts copper and one part spelter. The statistics of exports from the United States, comparing the nine months ending March, 1914, with the nine months ending March, 1915, show an increase in brass in bars, plates, sheets, etc., from 4,162,556 pounds to 22,051,699 pounds, which would represent in spelter an annual rate of say 5,000 to 6,000 net tons. In articles made from brass, on which only the value is reported, there was an increase of \$1,300,000 in the nine months, obviously representing only a negligible quantity of spelter.

In cartridges, which the government reports under the heading "explosives" there was an increase from \$2,541,258 to \$9,570,077. While it is impossible to estimate what proportion of this value was repre-

sented by the spelter involved, it is evident that the tonnage could not have been large, because if the entire value lay in the crude brass, allowing nothing for the cost of making and loading the cartridges, the spelter required would be only at the rate of 10,000 to 20,000 tons a year. The actual spelter involved, therefore, was inconsiderable.

Nevertheless the brass mills in New England have for months been reported as very busy. Either they are making products which are not returned in the government export statistics as brass, manufactures of brass, or cartridges, or it does not require a very large tonnage to make them busy.

The exports of brass in various forms may, however, increase somewhat in future, and seeing that the exports of spelter in the seven months ending March 31st were at the rate of 170,000 net tons a year, the new demand upon the United States for spelter and brass may be forecasted at 175,000 to 200,000 net tons a year representing from 48 to 55% of the United States production in 1913.

Naturally so large a demand cannot be created suddenly without the metal becoming relatively scarce. The only question is how scarce, and what price the scarcity will justify, whether three times the low price of 1914 and practically double the highest price prior to the war, or some other higher or lower multiple of these prices.

There is also a question whether or not there are concealed speculative stocks in the United States. Obviously, if there were such stocks they would be very carefully concealed, for the holders would be playing for such high stakes that no chances would be taken.

BUSINESS TRENDS.

BUSINESS FAILURES IN MAY.

Business mortality in the United States last month was far greater than in May of last year or 1913. According to Bradstreet's, it was greater than ever before recorded in May. At the same time, the figures compiled by R. G. Dun & Company show that insolvencies last month of 1,707 compared with 2,063 in April, 2,090 in March, and 2,278 in February, while there was a decrease of 1,441 suspensions from the January figures, or fully 40%.

As shown by the Dun returns, moreover, \$21,053,212 of liabilities involved by defaulting concerns last month were not only the smallest of the year—showing a marked contraction as compared with January, February, and April—but were also less than those in May, 1914, when the amount was \$23,447,496.

In the following table will be found the number of failures since the beginning of 1915 as reported by "Bradstreet's":

	No. of failures.	Assets.	Liabilities.
January	2,378	\$35,428,030	\$50,576,581
February ...	1,865	13,663,744	24,943,644
March	1,881	16,463,432	29,896,857
First quarter	6,124	65,555,206	105,417,082
April	1,671	20,965,394	34,029,164
May	1,440	10,005,789	18,150,169

COMMODITY PRICES VERY HIGH.

Bradstreet's index number of commodity prices as of May 1st is \$9.7878, the second highest number ever quoted, the absolute top level having been reached on August 15, 1914, a fortnight after the outbreak of the war. Withal, the advance scored within a month's time is only a fraction of one per cent. But comparison with May 1, 1914, at which time prices were giving evidence of sustained ease, shows a rise of 13%, and contrast with the like date in 1913 and 1912 reveals gains of 7% and 5.5%, respectively.

In various ways the European war is largely responsible for higher quotations, demand for products of American origin being unabated, and at the same time the situation as to some articles has been im-

proved by a spreading out of domestic wants.

The following table gives "Bradstreet's" index numbers (the totals of the prices per pound of ninety-six articles, since January 1, 1911:

	1911.	1912.	1913.	1914.	1915.
Jan. ..	8.836	8.949	9.493	8.885	9.143
Feb. ..	8.766	8.958	9.459	8.861	9.662
Mar. ..	8.692	8.902	9.405	8.832	9.619
Apr. ..	8.522	9.098	9.297	8.756	9.775
May ..	8.459	9.270	9.139	8.622	9.787
June ..	8.529	9.102	9.072	8.622	...
July ..	8.594	9.112	8.952	8.656	...
Aug. ..	8.657	9.159	9.011	8.708	...
Sep. ..	8.819	9.215	9.100	9.757	...
Oct. ..	8.806	9.451	9.152	9.241	...
Nov. ..	8.892	9.478	9.225	8.862	...
Dec. ..	8.982	9.546	9.229	9.035	...
Year ..	8.713	9.186	9.211	8.903	...

BANK CLEARINGS.

Following are the aggregates of clearings monthly at all cities, compared with the like periods in the three preceding years, compiled by Bradstreet's Journal:

(Six figures omitted.)

	1915.	1914.	1913.	1912.
January ...	\$13,356	\$16,102	\$16,090	\$14,977
February ..	11,836	12,775	13,481	12,788
March	13,736	14,151	13,985	14,330
1st quarter	38,928	43,028	43,556	42,095
April	14,906	14,801	14,153	14,855
May	14,519	13,070	13,980	14,708
June .....	.....	13,806	13,580	13,519
2nd quarter	.....	41,677	41,712	43,082
July .....	.....	14,359	13,422	13,847
August .....	.....	9,812	12,260	13,097
September .	.....	9,894	13,293	12,956
3rd quarter	.....	34,065	38,975	39,900
October ....	.....	11,591	15,551	17,002
November .	.....	10,951	13,742	15,228
December ..	.....	12,509	14,537	15,217
4th quarter	.....	35,051	43,830	47,447
Grand total	.....	153,821	168,914	172,524

BUSINESS TRENDS.

LARGER OUTPUT OF CHARTERS IN MAY.

The number and capital of charters in the United States during the month of May present a somewhat more favorable showing than the figures for April and for the corresponding month last year. According to the returns specially compiled by The Journal of Commerce, incorporations with a capital of \$100,000 or over represented a total of \$124,041,000. In April the total was \$77,466,000, while in May a year ago it was \$121,965,000. Companies incorporated in the Eastern States with \$1,000,000 capital or over contributed \$78,950,000 of the grand total, comparing with \$32,200,000 in April, and \$62,700,000 in May of last year.

Following are the comparative figures of the Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. ..	\$51,150,000	\$120,050,000	\$332,450,000
Feb. ..	53,950,000	51,575,000	191,500,000
Mar. ..	70,650,000	57,700,000	166,030,000
April ..	32,200,000	136,185,000	198,718,000
May ..	78,950,000	62,700,000	152,200,000
Total	\$286,300,000	\$428,210,000	\$1,060,898,000
June ..	70,050,000	79,550,000	
July ..	68,700,000	83,650,000	
Aug. ..	50,600,000	63,500,000	
Sept. ..	54,800,000	42,750,000	
Oct. ..	35,487,500	70,856,300	
Nov. ..	81,650,000	77,800,000	
Dec. ..	105,450,000	55,250,000	
Total	\$894,947,500	\$1,534,254,300	

MAY PIG IRON PRODUCTION SHOWS INCREASE.

The total pig iron output in May was 2,265,470 tons, or 72,015 tons a day, against 2,116,494 tons in April, or 70,550 tons a day. With 205 furnaces in blast June 1st, or ten more than on May 1st, the active capacity was 74,343 tons, against 71,385 tons one month previous. Pig iron production is now at the rate of 27,400,000 tons a year. On April 1st it was at 26,000,000 tons, and on January 1st at 18,000,000 tons a year.

THE STOCK MARKET.

Stock market operations in May were only about half those of April, total sales amounting to 12,607,107 shares compared with 20,087,188 shares in April and 4,749,401 shares in May 1914. During the month there were three days on which sales exceeded a million shares, making ten this year up to the end of May. The largest single day's transactions in May were 1,152,000 shares on the 10th; the smallest, 162,324, on the 28th.

The stock market is dull and waiting, pending further developments in the controversy between the United States and the German government. The fact that no additional break followed the sudden news that another American steamship had been damaged, and possibly torpedoed, would seem to show that Wall Street had discounted the strain in the international situation and that the stock market was technically oversold. Fluctuations in prices are narrow, public interest is for the moment in abeyance, and professional speculators show a disinclination to extend their commitments in view of the uncertainty of the situation. Still, the market continues to exhibit a good tone, reflecting the belief in the strength of this country's position.

Bond transactions during May amounted to \$62,339,000, as against \$109,840,000 in April, and \$46,189,000 in May, 1914. The largest single day's trading in May this year was \$5,693,000, on the 10th, and the smallest \$1,443,000, on the 18th.

OUR FOREIGN TRADE.

Our foreign trade for April and four months compares as follows:

	1915.	1914
April:		
Exports ..	\$294,470,199	\$162,668,852
Imports ..	160,576,106	172,640,724
Excess of exports	\$133,894,093	\$90,028,128
Excess of imports		
Four months ended April 30th:		
	1915.	1914
Exports	\$2,225,548,068	\$2,107,871,811
Imports ..	1,574,189,749	1,548,908,644
Ex. of exports	\$651,358,319	\$558,963,167

THE SPELTER FAMINE.

Actual Cost of Substitutes for Galvanized Sheets and Sheet Zinc.

We do not mean by the caption that we are going to propose substitutes for galvanized sheets and prove that they are adapted to any particular purpose in preference to galvanized sheets at one price or another. Neither do we regard 20 cents for spelter in the next few months as a distinctly more probable price than a higher or lower figure, but it is necessary in making comparisons to select a specific figure. There is demand for analysis of the possibilities, and no more is purposed. So many possibilities arise that it is well to gather the data together.

No statistics of galvanized sheet production are available except for the year 1913. The production in that year was:

	Gross tons.
Sheets galvanized	808,818
Formed products galvanized	66,664
Total	875,482

In a fairly prosperous year, therefore, there is demand for about a million net tons of galvanized sheet products, for a wide variety of uses.

From a tonnage standpoint the most important use of galvanized sheets has been for roofing and siding purposes. In most such instances the question of a substitute hinges chiefly upon two points, the first cost and the amount of attention the user is willing to give the material during its life. If one use ordinary sheet steel, copper bearing sheets, pure iron, galvanized sheets or terne plate he should in every instance keep the material properly painted. It is simply that some materials require more careful painting than others. Galvanized sheets have been used instead of painted sheets in the past because the painted sheets required more attention than was commensurate with the slightly decreased cost as compared with galvanized. Terne plates are made in a range of coatings from 8 lbs. to 40 lbs. per case, 20x28, the heaviest coating being five times the lightest, yet the lightest coating has considerable durability if kept properly painted while the heaviest has not a great deal if it is not at least properly painted at the outset. Important claims are made for copper bearing steel and for pure iron, yet each of these products is still more durable if galvanized, and

then kept properly painted.

Hence no one but the ultimate consumer can determine the choice between galvanized sheets and uncoated sheets, for the choice is largely dependent upon how much attention the user is willing to give the material in service.

Cost of Galvanized Sheets.

We do not know what a continuous 20-cent spelter market would develop in the way of a market price for galvanized sheets. The spelter market has fluctuated too widely for a definite market on galvanized sheets to be established. For an approximate idea one may take prices of last December, 2.65c for 28 gauge galvanized sheets and 5-cent spelter, and assume 1½ oz. per square foot to be consumed in applying the coating. For a 15-cent rise in spelter this would give 4.45c for flat galvanized sheets or 4.50c for corrugated. It is evident that a very much heavier gauge of painted could be purchased at a much lower price.

At last December's prices a square of 24 gauge painted weighing 110 pounds cost slightly less, and a square of 22 gauge painted weighing 136 pounds slightly more, than a square of 28 gauge galvanized weighing 85 pounds. With 4.50c galvanized sheets a square of 22 gauge painted costs only 65% as much. If one desires to substitute, he has the choice of taking a very light gauge painted and expecting it to last only a short time, until galvanized sheets are down again, or taking a very heavy gauge and expecting it to last as long as the galvanized.

Terne Plates.

Hitherto the cost of a terne mixture, 70% lead, 30% tin, has always been much more than the cost of spelter, but on May 18th, for the first time in history, a pound of such terne mixture cost less than a pound of spelter. On that date tin at 38.50 and lead at 4.20, New York, made a 70-30 terne mixture cost 14.49c per pound, New York, while spelter was nominal at 15.00 to 15.25c, St. Louis, and 15.25 to 15.50c New York. The lowest annual average prices for both tin and lead fell in 1896, tin being 13.24c and lead 2.98c, both New York, making a 70-30 terne mixture cost 6.06c. In the same year spelter averaged 3.94c, New York.

The cost per pound of the coating metal is of course only one factor. There are great differences in the thickness of coating required with different metals to protect the steel base, and there are very considerable differences in the cost of applying the coating.

We make no attempt to pry into the mysteries of how much the coating can be skinned, and simply adopt the usual trade suggestions, which are in the case of coke tin plate two pounds of pig tin required per box and in the case of light gauge galvanized sheets, say 28 and lighter, 1½ ounces of spelter per square foot. The base box of tin plate is 21,360 square inches or 217.78 square feet, so that two pounds of tin would mean 0.147 ounce per square foot, one-tenth as much weight as the spelter coating. Five times the minimum amount of 40-cent tin would cost the same as the regular minimum of 20-cent spelter. That would be a 10-pound coated charcoal bright plate, a very valuable and durable article indeed.

The terne mixture, of course, makes a vastly more favorable comparison. With 38c tin and 4.90c lead a 70-30 mixture costs 14.83c at New York, or considerably less per pound than the cost of spelter. The experience of many years indicates that eight pounds coating per case of 20x28 is about the minimum that one should attempt to apply, while the maximum is 40 pounds. The latter coating produces a very high grade terne plate, and it is not feasible to attempt to apply a heavier coating. The 40-pound coating is indeed not always selected even for the most important roofing projects. Even a 40-pound coating at 70-30, 14.83c, costs only 1.36c per square foot, while 1½ ounces spelter per square foot to cost 1.36c means only 14½-cent spelter.

With a 90 lead 10 tin mixture, not difficult to apply, and making an excellent coating for many purposes, the comparison is still more favorable.

The cost of applying the various coatings of course varies quite widely, the cost of application per square foot being probably the lowest with spelter, higher with tin, still higher with terne and highest of all with a practically pure lead coating. Several sheet mills are now at work on the proposition of putting lead coated plates on the market on a large scale. The lead coated plate is not a new commodity but

the cost of manufacture is such that in the past it has not been able to compete very successfully with other products. Now the case is entirely different.

Prices for lead coated sheets have not of course been at all definitely determined, but we understand that some early orders taken were on the basis of 3.10c for 26 gauge and 3.40c for 28 gauge.

An interesting point in connection with lead coated sheets is that their production is much more expensive, per given area, with the heavier gauges than with the light gauges, something that is not the case with galvanized sheets. Thus a condition may be developed of lead coated sheets securing the preference in the case of 28 and nearby gauges, and securing no such preference in the case of the heavy gauges. The differential between light and heavy is likely to be less with lead coated than with galvanized sheets.

Iron Sheets.

Several manufacturers have had upon the market a pure iron sheet, for which they make the claim that weight for weight it is as durable as galvanized steel sheets. This claim is combatted by other manufacturers. We have doubts whether any exact comparison could be made, as so much depends upon the painting in either instance.

While the market price of this iron, practically unchanged for about a year and a half, has been much higher than ordinary black steel, the price is much lower than galvanized steel sheets based on the prices that are practically certain to rule eventually. Taking 4.50c for 28 gauge galvanized sheets, the cost of pure iron corrugated per pound would be 4.55c and the cost per square \$3.87. Prices per square for pure iron painted corrugated are as follows:

Gauge.	Weight per square.	Price per square.
26	83	\$2.55
24	110	3.30
22	136	4.10

As the weight of 28 gauge galvanized corrugated is 85 pounds per square, the pure iron of about the same weight, 26 gauge, would be 24% less and pure iron of 110 pounds weight, 30% greater weight, would be 15% less, a comparison which the makers of pure iron insist is extremely favorable to their product.

Solid Metals.

The possibilities of aluminum, lead and copper in sheets may as well be considered, in order to cover the subject fully. They cannot be considered substitutes for galvanized sheets at any conceivable price, but to an extent they are substitutes for sheet zinc.

Aluminum has reached a position of being competitive with sheet zinc, since rolled aluminum weighs only about 38% as much as rolled zinc, so that bulk for bulk aluminum and zinc would cost the same if the aluminum cost 2.6 times as much as the zinc per pound. Bulk, or thickness of sheet, plays of course the important part in determining stiffness, and as a matter of fact the tensile strength of aluminum (which is determined per unit section of area, not by weight) is greater than that of zinc. While it resists corrosion, aluminum has the undesirable quality that friction rubs off a black substance; to sight it is clean while to touch it is dirty.

Sheet lead presents little competition because while it is cheap per pound it cannot be rolled very thin. The difficulty in rolling, on account of the material tearing, is such that the regular list on sheet lead carries one price per pound for the heaviest down to 2 pounds per square foot, while under that weight the price per pound advances rapidly. $1\frac{1}{2}$ pounds per square foot costing about one and a half times as much per pound as 2 pounds per square foot, while the per pound price of 1 pound sheets is almost double the base price. Thus lead sheets 1 lb., $1\frac{1}{2}$ lbs. and 2 lbs. per square foot all cost about the same price per square foot. With the lead market advancing as it has lately no precise quotation can be given, but about 7c per lb. may be taken as the approximate base price, making about 14c per square foot for lead sheets 2 lbs. and lighter per square foot.

The difficulty of rolling copper increases rapidly with width, length and thickness. The base price (at this writing 24c per lb.) applies to a number of sizes and thicknesses but as the width or length is increased or the thickness decreased the extras begin. For instance, sheets 30x72 inches are base down to 16 ounces per square foot, extras coming in for lighter sheets, while 48x120 inch sheets are base only in 64-ounce and heavier.

The cheapest copper sheets are those not over 30x72 inches. They are base (24c) down to 16-ounce, with extras for lighter sheets. We compute the cost per square foot as follows of sheets 30x72, on a 24c base:

Per Square Foot.

Ounces.	Cents.
16	24.0
14	21.9
12	19.5
10	16.9
8	15.0
6	12.4

Six-ounce copper sheets, therefore, would compare with the lead sheets and galvanized sheets noted above, and would be a substitute for galvanized sheets only if they were much superior physically for some particular use.

Past High Prices for Galvanized.

Because galvanized sheets sold last December and January at 2.65c or even a trifle less for 28 gauge, advances to 4c or 5c a pound cause men to throw up their hands and talk substitutes. Prices higher than 5c per pound were actually paid in August and September, 1901, however, during Theodore Shaffer's strike against the United States Steel Corporation. Prior to 1904 galvanized sheets sold at discounts from list, there being one discount for all gauges, while the list was 17c on 28 gauge. During the height of the strike the jobbers' price was 65% off, equal to 5.55c on 28 gauge. The price was paid by consumers. The mills did not secure it, because such deliveries as could be made had already been sold at lower prices, the bulk of the tonnage produced during the strike having been sold at 75% off (4.25c) or somewhat less. In a few instances, however, mills did secure 70% off, or 5.10c. Whatever the mills received, however, it is a fact that consumers did pay from 5c to 6c for galvanized sheets at that time.

We have no statistics at hand of average prices during previous years, but in general for say 10 years prior to 1901 the market was about as often above 80% as below that level, and 80% off meant 3.40c for galvanized sheets.

Thus the absolute price may not have so much to do with substitutes after all. The important point is that when galvanized sheets were high in the past, black sheets

were high also. Now black sheets are if anything easier than they were at the beginning of the year, while galvanized are so much higher.

We have endeavored to cover this subject of possible substitutes for galvanized

sheets because there is a demand for such information, for comparative purposes. We do not know, and we doubt whether anyone knows even approximately, to what extent substitutions would be practiced in case galvanized sheets should rule steadily at higher than 4c or higher than 5c a pound.

THE BUSINESS EFFECTS OF A WAR WITH GERMANY.

What Will be the Effect on Business if America is at War With Germany?

By Warren F. Hickernell, Editor, The Brookmire Economic Service.

This subject has been suggested to us by the editor as being a "topic which is on many men's minds these days." The discussion of this question involves two other subordinate and preliminary questions: (1) What is the state of business at present? (2) Just what do we mean by "War with Germany" under the present international situation.

The Present State of Business.

In answering the first question we would say that business is now in a depressed state as indicated by the solid black line at the top of the accompanying Chart, which registers the Business Index at about 40 barometric degrees below the normal or average line, that is, business at the present time is about on a level with the lowest point reached in 1914 and about the same as at this time in 1908. The Stock Market Index, also at the top of the Chart, shows that the New York Stock Market scored a considerable advance during March and April, and since stocks merely reflect the future outlook for business profits, this full movement would argue for better business conditions later in the year.

The most important fundamental influence underlying the recent improvement has been the betterment of banking conditions of this country since last October as indicated by the conspicuous rise in the Index of Banking Funds in the United States since that time. If a war with Germany would cause another smash in this Banking Index, such as the one experienced last August, then a war with Germany would hurt business in the United States. But, let us go one step further. The recent rise in the Index of Banking Funds has been due to the big credit balance arising

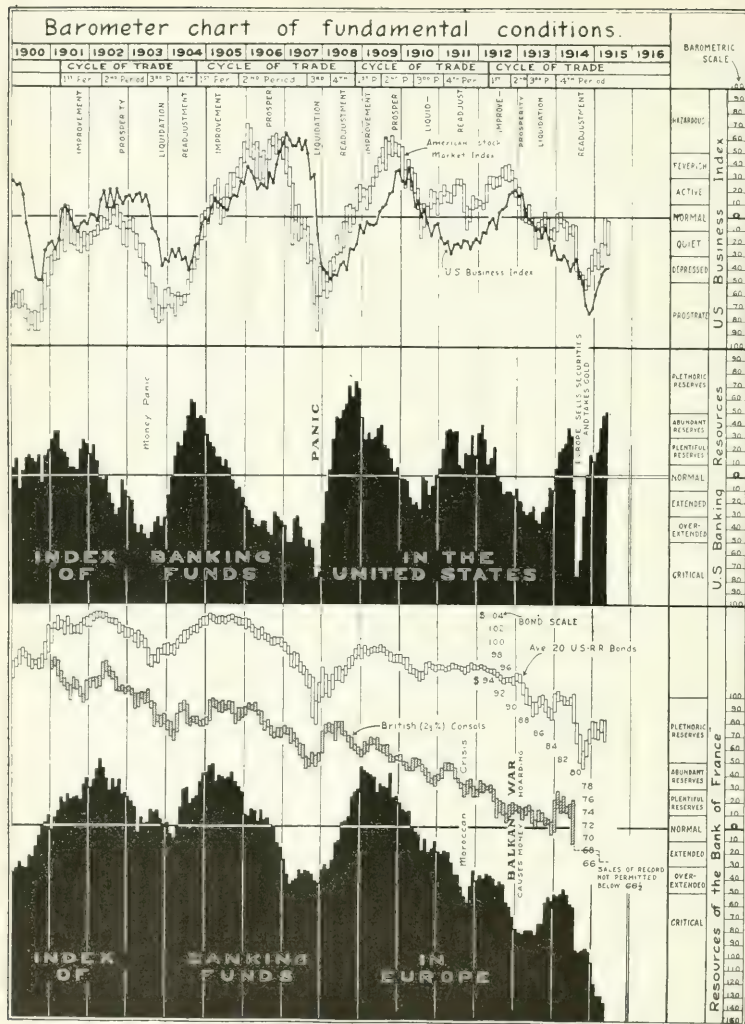
from our large export trade with Europe. Hence, whether a war with Germany will hurt business in the United States depends upon whether it will hurt our export trade and curtail the foreign credit balance which is giving our bankers such an abundance of funds at the present time.

War With Germany Defined.

If a declaration of war upon Germany would mean merely a severing of diplomatic relations, as some have suggested, then it would have little effect upon business. If it would mean that our government would take active measures to furnish the allies with munitions and money, business conditions would not greatly change, for we are already helping the allies as much as we can in this direction. It is probable, however, that our factories would be benefited somewhat, for now, some of our manufacturers are refusing war orders where credit is offered in payment instead of cash, whereas, if we declared war upon Germany, our Government would guarantee the credit of Russia and other European countries thereby increasing the amount of war orders accepted by our manufacturers. If by war we mean that the United States would send troops, battleships and ammunition to Europe on her own account, moreover, this would mean that still larger war orders would be received by our factories. And many manufacturers would probably experience a temporary increase in their profits.

Long Range Effects.

The general effect of such a war in its long range consequences, however, would be more injurious than beneficial. In the first place, labor would be diverted from the factories to the battlefield and this would tend to increase wages and deplete the



This Chart shows Banking Funds in the United States abundant, in striking contrast with the critically exhausted state of the Banks in Europe. This conspicuous divergence in condition is due to the fact that the European banks are compelled to ship gold to this country in payment of War purchases. After the War is over, however, there will be an international readjustment during which our banks will cease to enjoy remittances from Europe on War orders and will probably be called upon to help restore normal financial conditions abroad.

productive capacity of the country. Our Government debt would also be increased, and whatever increase in business might come from war expenditures by the Government at the present time would be offset by the adverse influence of a war debt overhauling the financial situation in the future. Such prosperity would be unhealthy and temporary in contrast with the permanent prosperity enjoyed when money is spent in profitable and productive business enterprises.

Question of Ultimate Peace.

The most significant effect upon business from a long range standpoint would probably be of an adverse nature. This idea was recently expressed by two of the most eminent English correspondents of American newspapers. One idea was that if the United States went to war with Germany it would make the ending of the war more difficult, as the United States is the logical choice for mediator when both parties to the conflict are exhausted. The entrance of the United States into the war, therefore, might prolong the conflict and intensify the financial strain in the international money markets, owing to the fact that our usefulness as a peacemaker at the psychological moment would be destroyed. The other correspondent reflecting the views of London bankers, suggested that it would be impossible for the United States to send an efficient fighting force of any consequence to Europe in the near future, so that the financial resources of the United States could be used to better advantage in furnishing munitions and other supplies to the allies than in financing the organization of

an army in the United States. He pointed out, for illustration, that although the entrance of Italy into the war would weaken the German military defense at other points, the expense of financing the Italian campaign would largely fall upon England; and if the United States also were to enter the war, the financial machinery of the world would be in danger of breaking down before the allies could vanquish Germany, thus forcing a compromise.

Aftermath and Conclusion.

The Index of banking funds in Europe, as shown at the bottom of the accompanying chart, indicates how badly exhausted the great banks of Europe have already become, and it is largely the financial strength of the United States which is giving the allies what chance of victory they now have before them. After the war is over there must be an international financial readjustment. Our exports will fall off and the European banks will call on New York for help. It would be better, therefore, to conserve our present financial strength than to use up our financial resources in going to war.

Our conclusions then are, first, that although our war orders would be somewhat increased and the markets for steel and other metals therefore temporarily improved if the United States declared war on Germany, we shall receive just about as many war orders if we remain neutral; and, second, that from a long range standpoint our financial condition and the business conditions dependent thereupon will be fundamentally more healthy if we stay in

AMERICAN IRON AND STEEL INSTITUTE.

The eighth general meeting of the American Iron and Steel Institute was held Friday, May 28th, with two day sessions and a banquet in the evening, with an attendance of about 450, with many new members present.

President Gary.

E. H. Gary, president of the institute and chairman of the United States Steel Corporation, delivered an address occupying nearly an hour, and an address that has been called the best he ever delivered before the institute. The important positions Judge Gary holds necessarily require him to be conservative, and the pendency of the

government's dissolution suit for more than three years has likewise imposed some limitations. In this latest address, however, Judge Gary was particularly forceful. Six days after the institute meeting the sweepingly favorable decision in the steel suit was rendered, and while he had always expressed confidence as to the outcome of the suit one is moved to wonder how outspoken he might have been had the decision been rendered a fortnight earlier. Space limitations prevent more than a brief reference to some of the more salient features of the address.

Business men have been blamed for not

taking more active part in opposition to the propaganda which strike at the free expansion of business, but statesmen with a reputation for fair mindedness have themselves been remiss. The fact should be emphasized that there was need for improvement in some business methods, and this improvement has undoubtedly occurred. The public recognizes the fact and the field is left open for business men to speak freely and frankly. So gifted by nature, this country should have been much more prosperous than it has been. The people are now demanding co-operation on the part of the government in building up business success.

"It is believed that if the business methods of the United States Government and of its branches and departments were as careful and economical as those of many of the corporations whose presidents are listening to me at this time, hundreds of millions could be annually saved to the people of this country, portions of which are sadly needed for other necessary purposes."

The Judge then referred in particular to national defense, an army reserve properly trained and an adequate navy.

After the war, if the United States conducts its affairs properly, if it manages things right, we shall become stronger and richer and more powerful than ever.

"Competition is, or should be, healthful, but co-operation, which benefits all concerned and injures none, is perfection of economic health and progress. Argument in favor of competition, without recognition of the principle of co-operation, is theoretic and academic, and is neither wise nor practical."

The outlook for improvement in the steel trade is better than it has been for a year, due partly to the European war, but also because of a change in sentiment towards business, which now seems apparent.

"The captain of industry is again becoming popular in the United States, and this has been brought about by the efforts of business men to satisfy the public in regard to their reasonable demands."

Willis L. King.

Mr. King responded under the five-minute rule, agreeing heartily with the suggestion that business men had been remiss in not standing out more boldly for their rights, and expressing stronger views than

had the president as to the future of business.

Charles M. Schwab.

At the banquet Mr. Schwab carried farther the theme of co-operation, insisting that definite policies along this line should be adopted. President Wilson had said, Mr. Schwab insisted, that business men should co-operate, and that if the laws prevented, the laws should be changed. World trade demanded co-operation. With steel makers at present, some wanted orders, some had orders thrust upon them, but soon all would have business thrust upon them. He believed the industry was on the verge of a prosperous era.

The Papers.

Edward F. Kennedy, on the commercial production of sound steel, advocated lower pouring temperatures and deoxidizing additions.

C. J. Bacon, on waste heat boilers for open-hearths, pointed out that actual practice had shown heat savings equivalent to at least 250 pounds of coal at 1100 B.T.U. per ton of ingots, which saving if applied to the entire output of 1913 would have meant 2,000,000 tons of coal. The cost of installation is about 25% higher than in the case of ordinary coal fired boilers, despite the saving in coal and ash handling equipment, stokers, etc.

Daniel M. Buck discussed recent progress in corrosion resistance, giving further data on the successful resistance of copper bearing sheets. He maintained that carbon in low ranges has little influence upon corrosion, and that the bulk of the manganese, being present as an alloy, has no effect electrolytically. Sulphur is very harmful. Phosphorus is rather beneficial than otherwise, so far as concerns atmospheric corrosion. Copper up to .25% increases the durability of steel, and neutralizes the harmful effect of sulphur up to about .14%. Dr. Allerton S. Cushman undertook to controvert some of Dr. Buck's statements, and promised, later, publication of results of tests of his own now being conducted. James O. Handy testified in favor of copper. William H. Walker combatted much that is claimed under the electrolytic theory, and testified that the film of iron hydroxide formed on copper bearing steel is much denser, and depolarizes much more slowly, than the rust on any other iron or steel he knew. John S. Under spoke for copper. C. H. Charls expressed gratifi-

cation that Dr. Buck had admitted 27 gauge pure iron had double the life of ordinary steel, but in fact the 27 gauge was nearer 28 gauge, and the manufacturers of pure iron do not advocate the use even of 27 gauge, as it is difficult to roll satisfactorily.

Jerome R. George discussed at length the development of the merchant mill, pleaded for specialization, pointing out that rails, wire rods, beams, hoops, skelp and many other sections now produced on specialty

mills were originally developed and rolled on merchant mills. With merchant mill products now running at 8,000,000 tons a year there is room for many sections to be taken from them and rolled on mills especially designed for the purpose.

A. E. Macecum discussed progress in blast furnace construction.

Dr. Lloyd Noland described in detail the very comprehensive system of welfare work established by the Tennessee Coal, Iron & Railroad Company.

INTERNATIONAL STEEL COMPETITION.

The question what will be the competitive relations of the iron making countries after the war is naturally arousing considerable attention both here and abroad. That former trade relations will be greatly disturbed goes without saying, but how the new relations will work out is by no means easy to determine.

The question is far from being an ordinary one of who can produce the more cheaply. The subject is vastly deeper. For one thing, there will be changes both in the productive capacity and in the consumptive capacity of some of the countries involved in the war. Furthermore, feelings of enmity and friendship will be left that will affect the movement of commodities—it will not in many cases be simply a question of who is the cheapest seller and whether the buyer can afford to buy. Again there will be new questions of financing and of extending credit.

As to cost of production we know quite well that our own costs have risen very materially in the past 15 years, while costs in Germany and Belgium have probably remained nearly stationary, and in England costs may possibly have declined somewhat. In the decade of the nineties the American steel industry was making very rapid strides in the introduction of manufacturing economies. The British were being left far behind. Later, however, the English ironmasters adopted improvements. In some respects they have gone farther than we, while in other respects they have not gone as far, partly because labor was cheaper and there were some labor saving devices profitable in the United States but not in England. An important fact is that our Lake Superior ores have decreased

greatly in richness. In the nineties we were skimming the cream, and partly because the best deposits have been worked out to a considerable extent and partly because we have had to mine so much ore per annum, three times as much in 1913 as in 1899, four times as much as in 1898 and five times as much as in 1896—all record years in their day—the average iron content of Lake ores has suffered a very considerable depreciation, involving more consumption of ore, coke and limestone per ton of pig iron, and higher carrying charges on all three.

The time was, in the nineties, when we could dump Alabama pig iron and Pittsburgh billets and rails, but the time has past. The time was practically past when the Steel Corporation took hold of the export trade in a serious and businesslike way some ten years ago. The record of our exports in recent years is an exact reversal of what used to occur. Then we exported (dumped) more when demand at home was light, but lately our exports have risen and fallen largely as demand in neutral markets fluctuated, the heavy exports tending to occur when our domestic market was good, and vice versa. In 1908, for instance, when in the domestic market it was a question of how many pounds rather than how many tons there was in an order, the exports were smaller than in any of the preceding four years.

For the United States it will not be a question of distinctly lower costs than may obtain abroad, unless costs abroad go up, but a question of organization, salesmanship and financing. For England there may be considerably less ability to finance, and there may not be, and there may be cheap-

es in wage rates of importance. For Germany one thing is certain; here hot house culture of export trade cannot be continued, with its large government aid and its extreme liberality in extending credits and financing new ventures. Early in the war we were told by some self constituted pedagogues that we would have to step into Germany's place, extend long credits and all that sort of thing. We may do something, but we certainly shall not go as far. Those who would conduct the export trade realize that it is wrong.

It is really not known how Belgium's steel industry stands. There has been much talk of destruction, but there are also re-

ports of works being rehabilitated under German control. As for the portion of the French industry in the hands of the Germans there are circumstantial reports that many of the works are maintained in operation by the Germans. Should the French regain the territory, as well as the territory lost in the Franco-Prussian war, France would find herself with a very large iron and steel industry, and no home market sufficient to absorb the output. It could not be sold to Germany, of course, and whether France would be able to build up a large export trade, with the productive facilities she would have, is quite a momentous question.

TOPICAL TALKS ON IRON.

XXVI. Metallic Coatings.

The majority of metals have a tendency to oxidize, but usually the oxide first formed constitutes a protective coating, preventing further oxidation. Lead furnishes perhaps the most familiar example; cut a piece of lead with a pen knife and one can almost see the oxide forming, but after a complete coating is formed the oxidation practically ceases. Not so with iron or steel, because the rust formed is porous and rather encourages further oxidation. Hence the desirability of a metallic protective coating.

A large number of metals, including gold, silver, nickel, copper, etc., can be electrically deposited on steel, and as the deposition is continuous, starting from nothing, the thickness of coating can be varied at will. Depending in part upon electroplating, but quite distinct from that art, is a practice of electroplating a steel ingot, placing it in a mold and casting copper about it, whereupon the ingot is rolled into sheets having a steel center and copper surfaces. There are various other processes of producing steel coated with another method, but commercially the most important process is that of coating by passing the steel through a bath of molten metal.

The coatings thus applied most commonly are three in number, zinc, tin and a mixture of tin and lead called *terne mixture*, usually made up of 70 to 75 parts lead and 30 to 25 parts tin, but sometimes running much richer in lead.

The behavior of the metals when applied

as coatings differs greatly. Tin, being soft, can be applied in quite heavy coatings and being extremely fine grained can also be applied in very thin coatings. Spelter, or zinc, being brittle does not make a serviceable coating if applied too thickly, being disposed to crack off, while being relatively coarse it cannot be applied in extremely thin coatings and made an adequate covering. The *terne mixture* possesses much the same characteristics as tin, but as lead is a grosser metal the coating cannot be made as thin as is the case with pure tin.

The great bulk of the tin plate manufactured, probably 90% of the total, carries the thinnest tin coating that can be applied and still make a serviceable commodity. The material is called "coke" tin plate while more heavily coated plates are called "charcoal" for the ample and sufficient reason, in these modern times, that long ago the thinly coated tin plate was made from iron sheets rolled from iron in the manufacture of which coke has been used for fuel, whereas the more thickly coated tin plate, being intended for a superior article, employed iron in the manufacture of which charcoal had been used as fuel.

The ordinary coke tin plate carries not over two pounds of tin per box of 31,360 square inches (412 sheets, 14x20 inches) or about 218 square feet. This spreads one ounce over about seven square feet, both sides. Theoretically the coating is about .0008 inch thick, or less than one thou-

width of an inch. Practically it has no absolute thickness since at the base of the coating there is a merging with the steel. A "charcoal" plate is regarded as heavily coated if it contains 10 pounds of coating per box, five times as the coke plate just considered, but even then the coating is less than one thousandth of an inch thick. The steel in the most common weight of tin plate is about one one hundredth of an inch thick.

The terne mixture requires a somewhat heavier coating to secure a proper surface, and the standard light coating is four pounds of terne mixture, instead of the two pounds involved in coke tin plate. The trade denomination, however, is "eight pound coated ternes" because ternes are usually double size, 20x28. It is feasible to increase the terne coating up to 20 pounds per single box, making "40 pound coated ternes". The specific gravity of lead being much greater than that of tin, the coatings in terne are not correspondingly as thick as in tin plate, and range from .00012 inch in the case of eight pound coated ternes to .0006 inch for 40 pound coated ternes. These are theoretical rather than actual thicknesses, because the coating and the steel unite to an extent.

The case of galvanized sheets is altogether different, for the coating is much thicker, and does not amalgamate so thoroughly with base material.

The standard United States gauge, by the way, assumes something that is not the case and probably never was the case. The gauge for black sheets is determined by weight per square foot, the thicknesses usually mentioned being approximate, while the weight should be exact. No. 28 gauge black weighs 10 ounces per square foot. The next three thinner

gauges drop one ounce each per foot, making 31 gauge 7 ounces, while the next three gauges drop one half ounce each. Heavier than 28 gauge the proportion is one ounce per gauge to 26 that is, 25 gauges weigh 10.50, the increase being constant throughout the list. It is possible that the heavy gauges (the coating being 2.5 ounces per square foot, but in 28 gauge it is certainly does not weigh more than 1.5 ounces), and it is doubtful whether it ever did weigh more. To make 28 gauge galvanized sheets one starts with a steel sheet of less weight than 28 gauge, about 27 gauge, and then puts on the coating. At 1.5 ounces per square foot the thickness of coating is theoretically about .00128 inch, about double the thickness of the most heavily coated terne plates and about 16 times the thickness of the most thickly coated tin plate.

It will readily be observed from these comparisons that the durability of any material does not depend upon the thickness of the coating nearly as much as upon the nature of the protecting metal and the closeness of adherence.

Entirely distinct from the common galvanized sheet is the "tight coated" in which the coating is made very thin because it is necessary that the material be particularly smooth, or be capable of extremely sharp bending, as, for instance, in the manufacture of channels for sash.

In the case of wire coated with spelter the coating is very thin as the molten metal can be wiped. With galvanized pipe the reverse is the case, the coating being thicker than is applied to galvanized sheets.

IRON AND STEEL

THE SITUATION.

May has resolved those doubts that existed at the close of April as to whether steel trade activity would taper off or continue to increase until capacity operations should be reached. There has been a general improvement nearly all along the line and the situation at the beginning of June is the best that has obtained since the movement of 1912-13.

The iron and steel industry is quite accustomed, in prolonged dull periods, to brief spells of improvement. These are not readily recalled because they are easily forgotten, having produced no important results, but if one looks back over the market reports in any of the dull periods he will find continued references to an improvement, lasting for a few weeks up to a couple months, after which the market has relapsed. In 1914 there were two such movements, in January and February and in June and July. In 1904 there was an improvement in February, which was promptly lost, another improvement in August which likewise faded away, and then a movement in November which many denominated "a false start towards prosperity" like its unfortunate predecessors, but the third start proved good and ushered in a three year period of the greatest aggregate activity the iron and steel trade had ever experienced.

At the beginning of last April the question was whether the improvement that began as to sentiment in November, as to buying in December and as to prices in January, was going to prove a minor or a major movement. There had been price advances in the majority of steel products, encouraging specifying for a time, but it was necessary for the mills to have a continuously heavier demand in order to support those advanced prices. Otherwise buyers would curtail their specifications again and prices would soften. Once a downward movement should start in prices, the market would in all probability be carried to a level approximating that from which it had recently advanced. Nothing, therefore, was settled. Our report of a month ago, written at the beginning of May, observed: "The slight decrease [in buying] that seems to have occurred in April, or even the ab-

sence of an increase, would be sufficient, so delicately are the minds of buyers balanced, to result in a material recession in activity" while it was pointed out that on the other hand "no large increase is needed to start the iron and steel markets on a long course of activity."

Since the above was written May has added its record and we are convinced has swung the scales to the favorable side. It is very probable that steel mill activity will now increase steadily until capacity operations are reached, resulting in forward buying and advancing prices.

The May Movement.

Of greatest importance both from the sentimental and from the purely tonnage standpoint, in May developments was the buying of rolling stock by the Pennsylvania railroad system, covering about 2,500 freight cars placed at the Altoona shops of the Pennsylvania and about 14,000 freight cars, 200 passenger cars and 200 locomotives placed with outside builders. At the same time the Pennsylvania put out an inquiry for 138,000 tons of rails, which will almost certainly be bought in June, the total weight of the rails and rolling stock being in excess of half a million gross tons, while the steel involved represents about 4% of the steel industry's total capacity for a period of five months, during which time most of the deliveries should be accomplished. At the close of May the steel mills had reached an operating rate somewhat in excess of 75% of capacity, but practically none of the steel involved in the Pennsylvania business will be rolled before the middle of June.

Of great importance is the increase in export demand that occurred in May, from a variety of sources. There was an increase in demand from neutral countries for steel for peace purposes. The Russian government began placing large orders for cars and rails, the orders totalling at least 15,000 cars and 50,000 tons of rails, while the purchases may eventually aggregate much more. It is a question whether this should be classed as war or peace demand. For munitions of war proper there was an increased demand, limited not so much by requirements as by ability of American mills to fill the orders. These ran largely

IRON AND STEEL.

to rifles and shrapnel, orders placed during the month probably representing several hundred thousand tons of steel, for the earliest delivery possible. There was an increase in demand for wire rods, plain wire, nails and barb wire, partly for war and partly for peace purposes. There was heavier buying of steel by automobile makers than would occur in May if there were no large

export orders to fill.

With the increased demand for steel, lines noted there was a return to the regular demand that had characterized earlier months in the year, there being in consequence various shipments and orders for increases.

Railroad Buying.

Upon the announcement that the Penn-

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

— No. 2 fdy —											Ferro-	Fur-
Bessemer, Basic, No. 2 fdy, Basic				No. 2X fdy, Cleve-	Chi-	Birm-	mangan-	nace				
Valley				Phila.	Phila Buffalo, land,	cago.	ingham.	ese.*	ce ke			
1913—												
Jan. . .	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85	
Feb. . .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60	
Mar. . .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47	
April . .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20	
May . .	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15	
June . .	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20	
July . .	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50	
Aug. . .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50	
Sept. . .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37	
Oct. . .	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10	
Nov. . .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88	
Dec. . .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77	
Year . .	16.26	14.77	14.87	16.29	16.56	15.12	15.37	16.39	11.73	57.87	2.38	
1914—												
Jan. . .	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88	
Feb. . .	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	48.00	1.90	
Mar. . .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	48.40	1.92	
April . .	14.00	13.00	13.25	14.15	15.00	13.75	14.21	14.75	10.52	48.00	1.90	
May . .	14.00	13.00	13.17	14.10	14.91	13.57	14.05	14.68	10.50	48.00	1.83	
June . .	14.00	13.00	13.00	14.00	14.51	13.01	14.25	14.21	10.29	48.00	1.80	
July . .	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.68	10.00	47.00	1.75	
Aug. . .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00†	1.74	
Sept. . .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70	
Oct. . .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65	
Nov. . .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60	
Dec. . .	13.75	12.50	12.75	14.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60	
Year . .	14.00	12.89	13.02	14.02	14.59	14.09	13.76	14.15	10.24	55.80	1.72	
1915 -												
Jan. . .	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55	
Feb. . .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55	
Mar. . .	13.60	12.50	12.75	13.50	14.35	11.74	13.25	13.09	9.42	78.00	1.53	
April . .	13.60	12.50	12.75	13.40	14.05	12.60	13.25	13.50	9.25	78.00	1.55	
May . .	13.60	12.50	12.75	13.25	14.25	13.17	13.25	13.50	9.47	91.00	1.50	

* Contract price, f.o.b. Baltimore; † Prompt; b. Connellsville opens.

‡ Spot shipment; no contract market.

IRON AND STEEL.

sylvania was about to make large purchases of rails and rolling stock the steel trade formed hopes that other railroads would follow. Then came the Lusitania event. The Pennsylvania proceeded with its purchases, but other roads have been conservative. The buying by other roads has been larger than in the early months of the year, but has not been large absolutely. The prospects for railroad buying are relatively favorable.

Plant Operations.

Steel mill operations rose from the rate

of about 70% of capacity, maintained during April to a rate somewhat in excess of 75% of capacity at the end of May. There was a slight decrease in sheet bar production at some of the valley mills, but the Carnegie Steel Company found itself filled with tonnage in its billet and sheet bar departments, and in the second half of May a very considerable tonnage of export billet and sheet bar business, taken by the export branch of the Steel Corporation, was placed with Chicago mills, for shipment via Gulf ports.

The rate of pig iron production in the

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

(Average from daily quotations, f.o.b. Pittsburgh.)										Composite		
Wire Cut					Sheets		Tin	Finished				
Shapes, Plates, Bars, Pipe, Wire, Nails.					Black, Galv.		plate.	steel.				
1913—												
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.72	3.47	3.60	1.7737
February	..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September	..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October	...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	..	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December	...	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—												
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February	...	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.32	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	...	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September	..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October	...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November	..	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769
December	...	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.35	1.5182
1915—												
January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	3.10	1.4554
February	...	1.10	1.10	1.10	80¾	1.38	1.58	1.55	1.80	3.09	3.10	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.80	3.40	3.15	1.5098
April	1.20	1.20	1.20	80	1.37	1.57	1.55	1.80	3.40	3.20	1.5357
May	1.20	1.17	1.20	79	1.35	1.55	1.55	1.80	3.60	3.11	1.5381

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country is now about 27,000,000 tons a year, fully one-half greater than the rate obtaining last December. At that time pig iron production at steel works furnaces, on the whole, was in excess of the consumption. The merchant furnaces have contributed but little to the increase in pig iron production that has occurred thus far, but indications at the beginning of June are that the merchant furnaces will soon begin to participate much more largely in the improvement.

Steel Prices.

Apart from advances in galvanized steel prices there is little to record as to steel price changes in May. The large mills maintained their prices on bars, plates and shapes, 1.20c for early shipment and 1.25c for contracts involving specifications during the third quarter, this being in accordance with programs announced earlier. In the case of bars the prices were well held, while in shapes the prices held as to ordinary lots. In the case of plates, however, some of the smaller mills were so eager for business that they quoted 1.15c and even less. The large mills have maintained their position, expecting the small mills to become filled.

Galvanized Steel Prices.

In the first two or three days of May spelter was 13c, East St. Louis; at the middle of May it stood at 15c and on June 1st it stood at about 23c, the prices mentioned being for early shipment. Using the low point of last October as a unit, spelter advanced from three prices to five prices. At the same time conditions were so chaotic that sellers of galvanized steel products did not know whether they ought to absorb some of the spelter advances that were occurring from day to day, or husband their meager stocks of spelter, usually insufficient to fill their contract obligations for finished products, and adopt selling prices such as would anticipate still further advances in the spelter market.

Late in February the American Sheet & Tin Plate Company advanced its galvanized sheet price to 3.10c for No. 28 gauge. The low point had been 2.60c or 2.65c, in December and January. The advance to 3.40c was not fully observed by the independents, while jobbers frequently sold at

large cuts, through having very low priced contracts. On May 17th the leading interest advanced from 3.10c to 3.60c and the independents who had early cut the 3.10c price claimed the later advance was not sufficient. In the closing days of May the leading interest made some slight advances, while on June 1st it announced a price of 4.25c. Instead of this price being cut the relatively few sellers that remained in the market quoted still higher prices, generally from 4.50c to 4.75c, while the leading interest picked its customers and sold only limited tonnages, particularly of the lighter gauges.

Under date of June 1st the steel pipe manufacturers reduced discounts on all sizes of galvanized pipe by five points, equal to an advance of about \$9.50 per net ton, no change being made in black steel pipe. The total increase in the spread this year has been about \$13.30 per net ton.

On March 1st the leading interest increased the galvanized wire differential from 40c to 50c per 100 lbs., while later in the month a further advance to 60c was announced, though not generally adhered to. By the close of May the differential had become firmly fixed at 80c, the total increase being \$8 per net ton, this reflecting a very high cost of spelter since in the case of wire the coating is very thin.

The sharp advance in the price of spelter and the extreme scarcity of the metal, at least marketwise, has put the galvanized steel manufacturers in a very embarrassing position. It is not simply a question of paying the price; it is a question also first of gambling on the spelter market and second of gambling on the probable demand for their products. Galvanized steel products can be sold only for relatively prompt shipment, as a rule for quicker shipment than could be made if spot spelter were bought and shipped the day on which the steel product is sold, for it requires several weeks to move the spelter and apply the coating. Spot spelter has been hardly obtainable, but if obtainable has commanded a large premium over very late delivery. The brass makers have bought spelter for shipment the early months of this year, protected presumably by contracts for ammunition. They cannot sell their own

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products for such deliveries and if they were sure that spelter would still be as high as the time of delivery they still do not know whether there would still be a demand for their galvanized products, at the prices they would have to charge. Consumers might perchance be using uncoated steel, or other commodities entirely.

Pig Iron.

On the whole, the pig iron market strengthened in May, but only slight so far as concerned prices. The buying was only moderate and scarcely equaled that of April. Better deliveries, however, placed the merchant furnaces in better position, and they enter June with much brighter prospects than they have had for months. Thus far they must depend upon general prospects rather than upon well filled order books, and this may be as well for them, since they may be able to participate more largely than they usually do in a price advance should one occur, as seems very probable. A significant item is that at the beginning of June there is actual or tentative inquiry for about 50,000 tons of Connellsville furnace coke per month over the second half of the year, largely for furnaces now in blast.

Prospects.

All indications are that steel trade activity will increase until in the near future, say in August, the mills will be operating practically at capacity. The labor supply is far from plentiful and it is certain that under market pressure the mills could not produce the maximum tonnages of which their physical equipment is capable. So uncertain, however, are ratings of capacity of steel mills in general, when there has been no recent test in actual performance, that the nominal ratings that have lately been used so freely as a basis of stating the rate at which plants have been operating, may be attained.

Steel prices show no signs of an early advance, in general, apart from the prospect that the program already announced, of bars, plates and shapes becoming 1.25c minimum on July 1st, will be carried out. Given the combination of steel mills operating substantially at capacity and the uncertainties attending war conditions, there may be very sharp advances in steel prod-

ucts later in the year. The war has made men's minds open, and those who have not resolved to forget precedents made in peace times have become a minority.

The Steel Suit Decision.

While the foregoing review has been written with full knowledge of the decision rendered June 3d in favor of the Steel Corporation in the dissolution suit, it is really too early to base any prediction upon the decision. Many reviewers no doubt will seize upon the event to build up a pretty tale of how the steel market will now be ruled. This would be to suggest that a decision favorable to the Steel Corporation was not generally expected in the trade, and that we do not believe to have been the fact.

OBSERVANCE OF STEEL CONTRACTS

It will be recalled that as a result of an open letter addressed last December to President Wilson by the manufacturers of Montgomery County, Pa., pointing to the very poor industrial conditions and blaming the tariff, the Department of Commerce made an investigation, and in its report charged the manufacturers making the complaint, engaged chiefly in the textile trade, with poor business practices, in that they guaranteed prices against decline and did not enforce their contracts. We commented on this at the time, pointing out that the steel trade frequently suffered from the same condition, and would be very glad, if it could, to rid itself of these unbusiness-like practices.

In some quarters in the steel trade this report of the Department of Commerce is still treasured, and hopes are entertained that possibly the Federal authorities may deign to permit the trade to rid itself of the practices, when they are so bad.

Obviously, the practice of failing to enforce contracts as written must either be declared illegal, or those desiring to rid themselves of the practice must agree among themselves to do so. Possibly the Federal Trade Commission may declare failure to enforce contracts an unfair trade practice, if it is empowered to make such a declaration it would be to the interest of the public.

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We do not wish to discuss that possibility at the moment, but rather to direct attention to the fact that it is a question whether it would be contrary to the Sherman law for iron producers to agree with each other to enter into contracts. That the manufacturers have not so agreed already is presumably due to the uncertainty. They do not wish to run the risk of punishment in order to find out what the courts would say.

Would such an agreement necessarily be in restraint of trade? Of course, if the manufacturers of merchant steel bars had contracts with all buyers at 1.25c, and yet many of them were ready to sell to new buyers at 1.15c, an agreement to continue the 1.25c contracts would be in restraint of trade. It would be agreeing to sell at 1.25c when without an agreement some or all would sell at 1.15c. The agreement, however, if one were made, would need to apply only to contracts to be made hereafter. Anyone who knows anything about the spirit pervading the finished steel trade in

the United States knows that even such an agreement entered into tomorrow would be unworkable. The steel industry has been afflicted with a large number of "stray" buyers. They would not be so effective buyers more exactly as to complete the canvass of the trade as to be able to "hold" them. Even if this agreement could be determined to have probable results, some iron selling companies may be ready to "sell" the material would not be in restraint of trade, but rather in restraint of trade. As we could not be sure of the final result. If the time came when without an agreement the manufacturers would submit to the buyer assuming the contract the manufacturers would then insist upon the buyer taking the material, thus causing trade policy to reverse itself. It would be a "sell" to the buyer. Would that be in restraint of trade?

Of course the lawyers on the other side would have a good deal to say. They always do. But in this case the other side has no room for argument.

PIG IRON PRODUCTION.

Rates per annum, including charcoal pig.

January, 1913	33,275,000
February	34,050,000
March	32,900,000
April	33,850,000
May	33,500,000
June	32,300,000
July	30,500,000
August	30,100,000
September	30,800,000
October	30,350,000
November	27,500,000
December	23,700,000
January, 1914	22,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000

March	24,600,000
April	26,000,000
May	26,800,000
On June 1st	27,600,000
Actual production:	
1900	13,189,242
1910	27,303,567
1913	30,966,152
1914	27,332,244

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February	1.4847	1.1500	1.024
March-April	1.5400	1.176	1.087
May-June	1.5277	1.1257	
July-August	1.5120	1.0008	
September-October	1.3931	1.0847	
November-December	1.2000	1.007	
Year's average	1.4421	1.1125	

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed:

1914				Nov. 2			
					Pipe (extra 2½% removed)		
Jan. 6	Wire nails	1.55	to 1.50			80% to	81%
" 7	Sheets	1.80	to 1.85	" 5	Bars	1.15	to 1.10
" 13	Wire nails	1.50	to 1.55	" 5	Shapes	1.15	to 1.10
" 21	Sheets	1.85	to 1.90	" 18	Sheets	1.90	to 1.85
" 30	Sheets	1.90	to 1.95	" 24	Plates	1.10	to 1.05
Feb. 3	Pipe	80% to 79½%		" 24	Wire nails	1.60	to 1.55
" 2	Wire nails	1.55	to 1.60	Dec. 1	Bars	1.10	to 1.05
" 4	Shapes	1.20	to 1.25	" 1	Shapes	1.10	to 1.05
Mar. 9	Shapes	1.25	to 1.20	" 3	Tin plate	3.25	to 3.20
" 20	Plates	1.20	to 1.15	" 4	Wire nails	1.55	to 1.50
April 1	Bars	1.20	to 1.15	" 28	Tin plate	3.20	to 3.10
" 8	Sheets	1.95	to 1.90	" 30	Sheets	1.85	to 1.80
" 17	Shapes	1.20	to 1.15	1915—			
" 20	Pipe	79½% to 80%		Jan. 1	Bars	1.05	to 1.10
" 27	Sheets	1.90	to 1.85	" 1	Plates	1.05	to 1.10
" 29	Tin plates	3.40	to 3.30	" 1	Shapes	1.05	to 1.10
May 19	Bars	1.15	to 1.12½	" 11	Wire nails	1.50	to 1.55
" 22	Wire nails	1.60	to 1.55	Feb. 11	Wire nails	1.55	to 1.60
" 26	Shapes	1.15	to 1.12½	" 11	Pipe	81% to	80%
" 29	Plates	1.12½ to 1.10		" 15	Galv. sheets	3.00	to 3.25
" 29	Wire nails	1.55	to 1.50	" 25	Galv. sheets	3.25	to 3.40
June 9	Sheets	1.85	to 1.80	Mar. 1	Bars	1.10	to 1.15
" 19	Bars	1.12½ to 1.10		" 1	Plates	1.10	to 1.15
" 19	Shapes	1.12½ to 1.10		" 1	Shapes	1.10	to 1.15
July 20	Wire nails	1.50	to 1.55	" 1	Wire galvanizing		
" 21	Bars	1.10	to 1.15		differential	40c	to 50c
" 21	Shapes	1.10	to 1.15	Mar. 15	Shafting	68% to	70%
" 23	Plates	1.10	to 1.15		(New list, f.o.b. Pittsburgh		
" 30	Tin plate	3.30	to 3.35		instead delivered)		
Aug. 5	Tin plate	3.25	to 3.40	" 17	Wire galvanizing		
" 6	Sheets	1.80	to 1.85		differential	50c	to 60c
" 11	Sheets	1.80	to 1.85	April 1	Boiler tubes		75%
" 11	Bars	1.15	to 1.20	" 1	Bars	1.15	to 1.20
" 11	Shapes	1.15	to 1.20	" 1	Plates	1.15	to 1.20
" 14	Tin plate	3.40	to 3.60	" 1	Shapes	1.15	to 1.20
" 21	Wire nails	1.55	to 1.60	" 14	Wire nails	1.60	to 1.55
" 31	Sheets	1.90	to 2.00	May 1	Steel pipe	80% to	79%
Sept 16	Tin plate	3.60	to 3.30	" 1	Boiler tubes	75% to	74%
" 26	Sheets	2.00	to 1.95	" 1	Tin plate	3.20	to 3.10
" 29	Bars	1.20	to 1.15	" 12	Plates	1.20	to 1.15
" 29	plates	1.20	to 1.15	" 17	Galvanized sheets	3.40	to 3.60
" 30	Tin plate	3.30	to 3.25	" 24	Galvanized sheets	3.60	to 3.75
Oct. 5	Sheets	1.95	to 2.00	June 1	Galvanized pipe	62½ to	63½
" 7	Shapes	1.20	to 1.15	" 1	Galvanized sheets	3.75	to 4.25
" 22	Sheets	2.00	to 1.90	" 1	Wire galvanizing		
" 27	Plates	1.15	to 1.10		differential	60c	to 80c

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	20,987,505
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	
August	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773	
September ...	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November ...	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December ...	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613	
Totals ...	\$201,271,903	\$249,656,411	\$289,128,420	\$293,934,160	\$199,861,684	\$55,509,677

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	174,313
April	93,285	100,911	117,921	228,149	267,313	259,689	161,952	
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	
June	69,770	114,724	120,601	174,247	273,188	243,108	144,003	
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	
Totals	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,730,681	1,549,503	458,470

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. ..	154,118	175,463	101,804	75,286
Feb. ..	129,693	188,734	112,574	78,773
Mar. ..	157,469	164,865	68,549	88,402
April ..	178,502	174,162	111,812	
May ..	194,482	191,860	125,659	
June ..	180,122	241,069	188,647	
July ..	185,677	272,017	141,838	
Aug. ..	178,828	213,139	135,693	
Sept. ..	180,571	295,424	109,176	
Oct. ..	202,125	274,418	114,341	
Nov. ..	163,017	179,727	90,222	
Dec. ..	199,982	223,892	51,053	

Totals 2,104,576 2,594,770 1,351,368 154,059

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan. ..	33,071	20,008	21,740	17,776	10,568
Feb. ..	20,812	11,622	25,505	14,757	7,506
Mar. ..	23,533	15,466	27,467	27,829	8,025
April ..	22,392	12,481	25,742	30,585	
May ..	23,347	15,949	28,728	28,169	
June ..	29,399	21,407	36,597	23,076	
July ..	15,782	17,882	39,694	25,282	
Aug. ..	10,944	20,571	18,740	28,768	
Sept. ..	14,039	18,740	19,941	38,420	
Oct. ..	21,035	25,559	20,840	22,754	
Nov. ..	13,880	24,154	25,809	24,165	
Dec. ..	19,665	21,231	26,454	9,493	

Total 256,903 225,072 317,260 290,394 18,074

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. May 31
	High.	Low.	High.	Low.	High.	Low.	
Bessemer, valley	17.25	14.25	14.25	13.75	13.75	13.60	13.75
Basic, valley	16.50	12.50	13.25	12.50	12.50	12.50	12.50
No. 2 foundry, valley	17.50	13.00	13.25	12.75	12.75	12.75	12.75
No. 2X idy. Philadelphia..	15.50	14.50	15.00	14.20	14.50	14.00	14.25
No. 2 foundry, Cleveland .	17.75	13.50	14.25	13.25	13.25	13.25	13.25
No. 2X foundry, Buffalo..	18.00	13.00	13.75	12.25	13.25	11.75	13.00
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	13.50	13.00	13.00
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	9.75	9.25	9.50

Scrap Iron and Steel.

Melting steel Pittsburgh .	15.00	10.75	12.00	9.75	12.50	11.00	11.75
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	9.75	8.75	9.75
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	10.75	10.75	10.75
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	11.75	11.00	11.75
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	11.25	9.50	11.25

Iron and Steel Products.

Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.20	1.20	1.20
Iron bars, Philadelphia....	1.67½	1.22½	1.25	1.12½	1.17	1.12½	1.17½
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.15	1.10	1.20
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.20	1.10	1.15
Structural shapes, Pitts. .	1.50	1.20	1.25	1.05	1.20	1.10	1.20
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12½	1.12	1.12½	1.12½
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	1.80	1.80	1.80
Galv. sheets, Pittsburgh..	3.50	2.80	3.00	2.75	4.50	2.65	4.50
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.20	3.10	3.10
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.55	1.55	1.55
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.60	1.50	1.55
Steel pipe, Pittsburgh	79½	80½	79½	81½	79½	81½	79½

Connellsville Coke at ovens.

Prompt furnace	4.25	1.75	2.00	1.60	1.60	1.50	1.50
Prompt foundry	4.50	2.40	2.50	2.00	2.20	2.00	2.10

Metals—New York.

							May 29.
Straits tin	51.00	36.75	65.00	28.50	57.00	32.80	37.75
Lake copper	17.75	14.50	15.50	11.30	19.12½	13.00	18.87½
Electrolytic copper	17.65	14.12½	14.87	11.10	18.87½	12.80	18.68¾
Casting copper	17.45	13.87½	14.65	11.00	18.00	12.70	17.57½
Sheet copper	22.00	19.75	20.25	16.50	24.00	18.75	24.00
Lead (Trust price)	4.75	4.00	4.15	3.70	4.15	3.70	4.15
Spelter	7.35	5.10	6.20	4.75	21.50	5.70	11.25
Cooksons antimony	9.87½	7.25	22.00	7.00	40.00	16.00	46.00
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	26.50	18.75	26.00
Silver	63¾	56½	59½	47½	51½	48	49½

St. Louis.

Lead	4.72½	3.85	4.10	3.35	4.45	4.10	4.42½
Spelter	7.17½	4.95	6.00	4.60	21.00	5.55	20.75
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	24.50	9.00	24.50

May 31

London.	£	£	£	£	£	£	£
Standard tin, prompts	232	166½	188	142	190	148	162¾
Standard copper, prompts...	77½	61¾	66½	49	81	57½	79¾
Lead	21½	15½	21	17½	23½	18½	20½
Spelter	26¼	20¼	31	21½	84	28½	84
Silver	293½d	25½d	27½d	22½d	24½d	23½d	24½d

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. May 28
	High.	Low.	High.	Low.	High.	Low.	
Atchison, Top. & Sante Fe...	106 ³ / ₈	90 ¹ / ₄	96	89	95	92	99 ¹ / ₂
Atch. Top. & Sante Fe, pfd.	102 ¹ / ₄	96	96 ¹ / ₄	96	100	96	98 ³ / ₄
Baltimore & Ohio	106 ³ / ₈	90 ³ / ₈	98	77	97	80	72 ³ / ₈
Canadian Pacific	266 ³ / ₄	201	229	75	174	152 ¹ / ₂	156
Chesapeake & Ohio	80	57 ¹ / ₈	68	60	67	59	39 ¹ / ₂
Chicago, Mil. & St. Paul	116 ¹ / ₄	96 ³ / ₄	107 ¹ / ₈	84 ³ / ₄	98 ¹ / ₄	83 ¹ / ₄	88 ³ / ₄
Erie R. R.	32 ¹ / ₂	20 ¹ / ₄	42	20	40	19	25 ¹ / ₈
Great Northern, pfd.	132 ¹ / ₈	115 ¹ / ₂	134	111	122 ¹ / ₂	112 ¹ / ₄	116 ¹ / ₂
Lehigh Valley	168 ³ / ₈	141 ¹ / ₄	156	130	146	120	140 ³ / ₄
Louisville & Nashville	142 ¹ / ₄	126 ¹ / ₄	140	125	127	109	116
Missouri, Kansas & Texas ..	29 ¹ / ₈	18 ¹ / ₈	24	8 ³ / ₈	15 ¹ / ₄	7 ¹ / ₈	11 ¹ / ₄
Missouri Pacific	43 ³ / ₈	21 ¹ / ₄	50	7	48	6 ³ / ₈	11 ¹ / ₄
New York Central	109 ³ / ₄	90 ³ / ₈	96	74	92 ¹ / ₂	81	84 ³ / ₄
N. Y., N. H. & Hartford	129 ⁷ / ₈	65 ⁵ / ₈	78	46	74	44	61 ¹ / ₂
Northern Pacific	122 ⁵ / ₈	101 ³ / ₄	118	37	112	60	104 ¹ / ₂
Pennsylvania R. R.	123 ¹ / ₄	106	115	102	111	100	107
Reading	171 ³ / ₄	151 ¹ / ₈	172	147	177	148	142 ¹ / ₂
Rock Island	247 ⁸	115 ⁸	16		4		3 ⁸
Southern Pacific	110	83	90	81	87	81	88
Union Pacific	162 ³ / ₄	137 ³ / ₄	164 ¹ / ₂	149	159	145 ¹ / ₂	126
Wabash	6	2	4		2		1 ⁴

Industrials.

Amalgamated Copper	80 ¹ / ₂	61	78 ¹ / ₂	78 ¹ / ₂	79	70	65 ¹ / ₄
Am. Beet Sugar ..	50 ¹ / ₂	19 ³ / ₄	35	19	50	34	45 ¹ / ₂
American Can	46 ³ / ₈	21	45	19	44	25	36 ³ / ₄
American Can Pfd.	129 ¹ / ₂	80 ¹ / ₂	96	80	100 ¹ / ₄	89	97
Am. Car & Foundry	56 ³ / ₈	36 ¹ / ₂	54	42	50	40	52
Am. Cotton Oil	57 ³ / ₄	33 ¹ / ₂	46 ¹ / ₂	32	54 ¹ / ₈	39	46
Am. Locomotive ..	44 ¹ / ₂	27	47	20	68		46 ³ / ₈
Am. Smelting & Refining	74 ³ / ₄	58 ¹ / ₂	71	50	76	56	65 ¹ / ₄
Brooklyn Rapid Transit	92 ³ / ₄	83 ³ / ₄	94 ¹ / ₄	79	93	84 ¹ / ₂	88
Chino Copper	47 ⁵ / ₈	30 ³ / ₈	44	34	44 ¹ / ₄	32 ¹ / ₂	44 ¹ / ₂
Colo. Fuel & Iron Co.	41 ¹ / ₂	24 ¹ / ₂	34 ¹ / ₂	20 ¹ / ₂	36 ¹ / ₂	21 ³ / ₄	30
Consolidated Gas	142 ³ / ₈	125 ¹ / ₈	139	112	141 ¹ / ₄	113 ¹ / ₄	123 ¹ / ₄
General Electric	187	129 ³ / ₄	150 ⁵ / ₈	137 ¹ / ₂	162	138	153
Interborough Metropolitan ..	19 ⁵ / ₈	12 ¹ / ₄	16	10	24 ¹ / ₄	10	22 ⁵ / ₈
International Harvester	111 ¹ / ₂	96	100	87	100 ¹ / ₂	89	94 ⁷ / ₈
Lackawanna Steel	49 ⁷ / ₈	29 ⁷ / ₈	49	26	49	28	44
National Lead	56 ¹ / ₄	45	52	40	50	44	60 ¹ / ₂
Ray Consolidated Copper	22	15	22	15	26 ¹ / ₂	15	23 ¹ / ₂
Republic Iron & Steel	28 ¹ / ₄	17	27	18	34	19	27 ¹ / ₂
Republic Iron & Steel, pfd....	92 ¹ / ₄	72	94	75	89	72	84
Sloss-Sheffield	45 ¹ / ₂	23	49	19	42	22	32
Texas Co.	132 ¹ / ₂	89	149 ⁷ / ₈	112	144 ¹ / ₂	120	124
U. S. Rubber	69 ¹ / ₂	51	66	44	74 ¹ / ₂	54	62 ³ / ₄
U. S. Steel Corporation ..	69 ¹ / ₂	49	67	48	60	48	54 ¹ / ₂
U. S. Steel Corporation, pfd....	100 ¹ / ₂	102	102	100	100	92	106 ³ / ₄
Utah Copper	60 ¹ / ₂	46	59 ¹ / ₂	45	54	48	65 ³ / ₄
Va. Carolina Chem.	43 ¹ / ₂	29	44 ¹ / ₂	37	47	37	31 ³ / ₈
Western Union Telegraph ..	75 ¹ / ₂	54 ¹ / ₂	60 ¹ / ₂	50	70 ¹ / ₂	57	66 ¹ / ₂

COMPOSITE STEEL.

Computation for June 1, 1915:

Pounds.	Group.	Price.	Extension.
2½	Bars	1.20	3.000
1½	Plates	1.15	1.725
1½	Shapes	1.20	1.800
½	Pipe (¾-3)	2.10	3.150
1½	Wire nails	1.55	2.325
1	Sheets (28 bl.)	1.80	1.800
½	Tin plates	3.10	1.550
10 pounds			15.350
One pound			1.5350

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	1.5381
June	1.6817	1.5794	1.7719	1.4750	.....
July	1.6701	1.6188	1.7600	1.4805	.....
Aug.	1.6394	1.6784	1.7400	1.5421	.....
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

Melting Steel Pits. Bundled Sheet Pits. No. 1 R R Pits. No. 1 Cast Pits. No. 1 Heavy Steel Pits. Phila. Ch'go.

1913—

Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.10	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.50	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21

1914—

Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.52	11.51	11.71	10.53	9.55

1915—

Jan.	11.40	9.20	10.75	11.25	10.30	9.00
Feb.	11.70	9.25	10.75	11.25	10.70	9.20
Mar.	11.80	9.37	10.75	11.50	10.85	9.25
Apr.	11.65	9.37	10.75	11.85	11.10	9.13
May	11.65	9.37	10.75	11.85	11.25	9.50

COMPOSITE PIG IRON.

Computation for June 1, 1915:

One ton Bessemer, valley	\$13.75
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.25
One ton No. 2X foundry, Buffalo	13.25
One ton No. 2 foundry, Cleveland	13.25
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry, Cincinnati (12.40)	24.80
Total, ten tons	130.55
One ton	13.055

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	13.026
June	14.032	14.005	14.968	13.606	.....
July	13.926	14.288	14.578	13.520	.....
Aug.	13.874	14.669	14.565	13.516	.....
Sept.	13.819	15.386	14.692	13.503	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets. Pits.	Sheet bars. Pits.	Rods. Pits.	— Iron bars, deliv. — Phila. Pits. Ch'go.		
1913—						
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug.	20.17	21.08	25.25	1.18	1.25	1.07
Sep.	20.75	21.75	26.00	1.18	1.20	1.07
Oct.	20.00	20.70	26.00	1.14	1.20	1.01
Nov.	19.25	19.75	25.00	1.13	1.20	.96
Dec.	18.75	19.25	24.40	1.12	1.20	.91
Year	20.06	20.82	25.50	1.20	1.27	1.07
1915—						
Jan.	19.25	19.75	24.80	1.12	1.20	.97
Feb.	19.25	19.75	25.00	1.12	1.20	1.03
Mar.	19.30	19.80	25.00	1.13	1.20	1.10
Apr.	19.50	20.00	25.00	1.18	1.20	1.14
May	19.50	20.00	25.00	1.18	1.20	1.15

* Premiums for Bessemer.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909:

Quarter.	1915.	1914.	1913.
1st	\$12,457,809	\$17,994,582	\$34,426,802
2nd	20,457,596	41,219,813	
3rd	22,276,902	38,450,400	
4th	10,935,635	23,084,330	
Year	71,663,615	177,181,345	
	1912.	1911.	1910.
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	30,063,512	29,522,725	37,365,187
4th	35,181,922	23,155,018	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter)

	First.	Second.	Third.	Fourth.
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	2,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,002,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643

CAR BUYING.

Freight cars ordered:

First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January 1914	10,000	
February	13,000	
March	8,000	
April	10,000	
May	10,000	
June	15,000	
July	7,000	
August	3,100	
September	95	
October	1,725	
November	550	
December	1,150	
Year, 1914		80,000
January 1915	3,300	
February	4,255	
March	1,287	
April	3,000	
May	20,210	
Five months		32,052

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, our own estimates, while last column is derived from official reports of "tonnage" while third percentage column is directly computed from this tonnage column.

	Ship- ments	Book- ings	Diff- erence	Diff- erence
	%	%	%	Tons.
October ...	87	74	10	190,018
November .	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	84	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	—32	—372,605
April	67	45	—22	—276,757
May	62	37	—25	—278,908
June	63	66	+3	+34,697
July	64	75	+11	+125,732
August ...	67	72	+5	+54,742
September ..	62	24	—38	—425,664
October ...	55	28	—27	—326,570
November ..	45	32	—13	—136,505
December ...	38	82	+44	+512,051
January 1915	44	81	+37	+411,928
February ...	57	66	+9	+96,800
March	67	60	—7	—89,622
April	71	63	—8	—93,505

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1914—	Pig iron.	Rails.	Tin Plate	Total*
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,555
May ..	95,037	56,881	48,628	437,648
June ..	38,569	39,700	36,565	356,066
July ..	74,617	43,433	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	328,992
Oct. ..	47,188	37,005	26,950	263,834
Nov. ..	49,666	16,181	30,942	240,617
Dec. ..	31,705	16,315	30,254	212,667
Year ..	90,405	435,440	435,497	3,977,468
1915				
Jan. ..	21,148	24,411	29,216	330,204
Feb. ..	21,934	14,877	25,101	198,804
Mar. ..	20,172	17,572	36,170	239,342
Apr. ..	35,209	21,602	40,135	264,244

* Includes scrap pig iron, rolled iron and steel cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

IRON AND STEEL.

PRODUCTION STATISTICS FOR 1914.

Shapes, Rods and Nails Produced, and Approximate Consumption.

The Bureau of Statistics of the American Iron and Steel Institute reports, in its Bulletin No. 3, June 4, 1915, statistics of production of shapes, rods and nails in 1914. Bulletin No. 1 gave the pig iron production and Bulletin No. 2 the rail production.

The statistics for the past three years are given below, all in gross tons except that nails are in kegs of 100 lbs. In structural shapes 1913 was the record year while in rods and nails the record year was 1912.

Heavy shapes include sections in which one leg or web is 13 inches or over, light shapes including smaller sections.

	1912.	1913.	1914.
Iron shapes	5,517	3,841	1,981
Steel shapes	2,840,970	3,001,131	2,029,143
Total shapes produced.....	2,846,487	3,004,972	2,031,124
Imports	3,120	11,659	10,145
Exports	288,164	403,264	182,395
Apparent consumption	2,561,443	2,613,367	1,858,874
Heavy shapes	2,470,415	2,553,806	1,787,281
Light shapes	376,072	451,166	243,843
Iron rods	1,280	832	731
Steel rods	2,652,264	2,463,975	1,430,983
Total rods produced	2,653,553	2,464,807	2,431,714
Imports	15,069	16,098	6,954
Exports	64,978	61,637	61,856
Apparent consumption	2,603,644	2,419,268	2,376,812
Cut nails (kegs)			
Production	978,415	842,038	769,665
Exports	208,568	84,885	76,676
Apparent consumption	769,847	757,153	692,989
Wire nails (kegs)			
Production	14,659,700	13,559,727	13,132,814
Exports	1,530,353	977,477	809,167
Apparent consumption	13,129,347	12,582,250	12,323,647
Cut and wire nails (kegs)			
Production	15,638,115	14,401,765	13,902,479
Exports	1,738,921	1,062,362	885,843
Apparent consumption	13,899,104	13,339,403	13,016,636

TIN.

TIN IN MAY.

The tin market opened in May at 40½c on spot, and during the first week eased up to 39¼c on it becoming very evident that there would be no difficulties attending the English embargo, that any bona fide consumers could get released, by the British Consul, any metal required for industrial purposes in America on their promise to use it for such purposes and not to export it. Also that jobbers handling the retail trade would be able to carry normal stocks to supply such trade by getting like guarantees, all sales to be made subject to the following to appear on all invoices:

"Delivery of the tin covered by this invoice is made by us with the understanding that it is intended to be used exclusively for industrial purposes in the United States and will not be exported."

The market continued very quiet, but around the 10th of the month there was an effort on the part of some interests here to excite the market immediately after it became known that the "Lusitania" had been sunk, and on that day the market was bid up to 40½c for spot. The movement, however, was frowned at by the trade, and there was a general disposition to stand still and do nothing until it was seen how serious the developments might be politically and financially. Beginning with the next day the market commenced to ease off and with slight recoveries the tendency has been a declining one until the month closed at 37½c. One of the new features that have come up during the month has been that small consumers who never before bought future deliveries have been taught a lesson by the abnormal prices they have had to pay for spot tin since the war broke out and have begun to follow the example of the larger consumers by always having a supply coming to them on purchases for future deliveries. This has lessened the volume of spot tin while increasing the volume of futures.

Arrivals during the month were large, namely 3,234 tons, and we commenced the month with large stocks, namely 3,041 tons, the deliveries for May proved to be, with one monthly exception, the largest in the

and in the history of the trade, being nearly 5,600 tons.

Future tin throughout the entire month has been available at 1c to 2c under the spot price for August to November deliveries, the farther off months being the cheapest. With the opening of June the low price at which these futures were available, namely around 36c for September, October and November began to attract attention on the part of large consumers, as a rule had nothing bought for delivery beyond August. During the past few days business has been done on an average of 500 to 600 tons per day, the largest order

TIN PRICES IN MAY.

New York. — London —

Day	Cents.	Prompts	Futures
1	40 1/2	162 10 0	162 10 0
2	40 1/2	162 10 0	162 10 0
3	40 25	162 10 0	162 10 0
4	39 50	160 10 0	162 0 0
5	39 12	161 10 0	162 10 0
6	39 00	161 10 0	162 0 0
7	39 25	164 10 0	162 0 0
8	39 12	164 10 0	162 0 0
9	39 12	164 10 0	162 0 0
10	40 15	165 10 0	162 0 0
11	40 11	164 0 0	164 0 0
12	40 00	164 0 0	164 0 0
13	39 50	163 0 0	164 0 0
14	39 00	162 10 0	162 10 0
15	38 50	162 10 0	162 10 0
16	38 50	162 10 0	162 10 0
17	39 00	163 15 0	162 10 0
18	38 50	162 10 0	162 10 0
19	37 75	160 10 0	164 10 0
20	37 50	160 15 0	164 10 0
21	37 81	162 5 0	162 10 0
22	37 75	162 5 0	162 10 0
23	37 75	162 5 0	162 10 0
24	37 75	162 5 0	162 10 0
25	38 00	164 0 0	162 10 0
26	37 75	162 0 0	164 10 0
27	37 67	162 0 0	164 10 0
28	37 25	163 5 0	164 10 0
29	37 25	163 5 0	164 10 0
30	37 25	163 5 0	164 10 0
31	37 25	162 15 0	162 10 0
Highest	40 25	165 10 0	162 0 0
Lowest	37 12	160 10 0	160 10 0
Average	38 51	162 12 10	162 10 0

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.					
	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,785
May	15,938	11,345	13,710	17,862	14,646
June	16,605	12,920	11,101	16,027	.....
July	16,707	13,346	12,063	14,167	.....
Aug.	16,619	11,285	11,261	14,452	.....
Sept.	16,672	13,245	12,943	14,613	.....
Oct.	14,161	10,735	11,857	10,894	.....
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	5,270
May	4,965	4,310	5,760	6,160	6,900	6,759
June	4,120	5,050	4,290	4,820	5,870	.....
July	5,040	4,660	4,580	4,770	4,975	.....
Aug.	5,700	4,680	5,210	6,030	3,315	.....
Sept.	4,220	5,150	5,430	5,160	4,973	.....
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	3,200
May	3,600	3,400	4,250	3,350	3,800	5,600
June	5,000	2,900	2,850	3,800	3,650	.....
July	3,800	4,300	5,150	3,900	3,900	.....
Aug.	3,700	3,800	4,300	3,600	2,900	.....
Sept.	3,300	4,200	3,600	3,100	3,600	.....
Oct.	3,350	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	May,	April,	May,
	1915.	1915.	1914.
Straits shipments	1915.	1915.	1914.
To Gr. Britain...	2,031	1,865	4,773
" Continent ...	923	1,295	1,157
" U. S.	3,805	2,110	933
Total from Straits	6,759	5,270	6,863
Australian shipments			
To Gr. Britain ..	153	200	145
" U. S.	nil	nil	nil
Total Australian.	153	200	145
Consumption			
London deliveries	2,276	1,667	1,887
Holland deliveries	83	681	1,040
U. S.	5,600	3,200	3,800
Total	7,959	5,548	6,727
Stocks at close of month,			
In London—			
Straits, Australian	1,716	3,598	2,777
Other kinds	1,673	1,846	3,022
In Holland	63	55	2,355
In U. S. excl. Pacific	1,425	3,041	1,773
Total	4,877	8,540	9,927
Straits afloat, close of month			
To London	3,071	2,315	5,359
Banca and Billiton			
To London	63	600	183
Total London ..	3,134	2,915	5,542
To United States			
Straits	6,470	3,605	.....
Banca	165	725	.....
Total U. S.	6,635	4,330	2,393
Grand total	9,769	7,245	7,935
Total visible			
supply	14,646	15,785	17,862

STRAITS TIN PRICES IN NEW YORK.

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.93
Apr.	42.20	44.02	49.12	36.10	47.97
May	43.10	46.12	49.14	33.30	38.78
June	46.16	47.77	44.93	30.65	.....
July	42.96	44.75	40.39	31.75	.....
Aug.	43.45	45.87	41.72	50.59½	.....
Sept.	39.98	49.18	42.47	32.79	.....
Oct.	41.21	50.11	40.50	30.39½	.....
Nov.	43.13	49.90	39.81	33.50	.....
Dec.	44.97	49.90	37.64	33.60	.....
Year 1915	42.68	46.43	44.32	35.70	.....

TIN — LEAD

ers buying. Under the movement the price of both spot and futures has advanced 15c to 2c a pound. Tin even at present prices is at a very low basis, being 5c to 9c a pound below the average of normal years like 1911-12-13, therefore it looks very attractive to consumers, especially as long as the war lasts developments might come up at any time that might seriously advance the price of tin, while there is nothing in sight that could seriously depress prices.

There is now every prospect of Bolivian concentrates being smelted in this country. We understand interests connected with the Guggenheims are erecting a plant to smelt these concentrates, and the National Lead Company are also reported to be experimenting with a view of also using Bolivian concentrates. A prominent English smelter, we also understand, is erecting a plant in England for the treatment of Bolivian ores. Consequently if the war is to be long continued and the German smelters that used to make various grades of so-called "impure" tin remain closed, the world will not long be deprived of the supply of tin from this important producer.

Many in the trade believe that Bolivia presents greater prospects of increase than the Straits, in supplying the increased requirements of the world for tin, which are certain to be in evidence when the present disturbed war conditions pass away, and peaceful pursuits are again restored.

LEAD (Monthly Averages.)

New York* — St. Louis —

	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	4.35	4.11	3.74	4.20	3.99	3.57
Feb.	4.35	4.06	3.82	4.20	3.95	3.52
Mar.	4.35	3.97	4.03	4.21	3.83	3.98
Apr.	4.40	3.82	4.19	4.25 ¹ / ₂	3.70	4.11
May	4.36	3.90	4.23 ¹ / ₂	4.22	3.81	4.16
June	4.35	3.90	..	4.21	3.80	....
July	4.37	3.90	..	4.25	3.75	....
Aug.	4.63	3.90	..	4.56	3.73 ¹ / ₂	....
Sep.	4.15	3.86	..	4.62	3.67	....
Oct.	4.45	3.54	..	4.31	3.39	....
Nov.	4.34	3.68	..	4.48	3.58	....
Dec.	4.06	3.80	..	3.94	3.67	....
Av.	4.40	3.87	..	4.26	3.74	....

* Trust price.

LEAD IN MAY.

At the opening of the war last August the price of lead was 3.72¹/₂c at St. Louis. Unlike other metals instead of the price and demand being stimulated exactly the opposite took place, and by late October the market had declined to 3.35c. It was figured the production was in no way decreased by the war, while the consumption was injured, as the metal entered considerably into large industrial undertakings, which on account of the unsettlement in financial circles were seriously affected. However, from that point prices began to slowly hard-

LEAD PRICES IN MAY.

Day.	New York.*	St. Louis.	London.
	Cts.	Cts.	£ s d
1 .....	..	..	..
2 .....	..	..	..
3	4.17 ¹ / ₂	4.10	21 2 6
4	4.17 ¹ / ₂	4.11 ¹ / ₄	20 7 6
5	4.17 ¹ / ₂	4.11 ¹ / ₄	20 8 9
6	4.17 ¹ / ₂	4.11 ¹ / ₄	20 8 9
7	4.20	4.12 ¹ / ₂	20 8 9
8 .....	..	..	..
9 .....	..	..	..
10	4.20	4.12 ¹ / ₂	20 6 3
11	4.20	4.12 ¹ / ₂	20 3 9
12	4.20	4.12 ¹ / ₂	20 3 9
13	4.20	4.12 ¹ / ₂	20 1 3
14	4.20	4.12 ¹ / ₂	20 5 0
15 .....	..	..	..
16 .....	..	..	..
17	4.20	4.12	20 7 6
18	4.20	4.12 ¹ / ₂	20 7 6
19	4.20	4.12 ¹ / ₂	20 6 7
20	4.20	4.12	20 1 1
21	4.20	4.12 ¹ / ₂	20 1 1
22 .....	..	..	..
23 .....	..	..	..
24	4.20	4.12	20 1 1
25	4.30	4.22	20 1 1
26	4.30	4.22	20 5 0
27	4.40	4.32 ¹ / ₂	20 8 9
28	4.50	4.42	20 5 6
29 .....	..	..	..
30 .....	..	..	..
31 .....	..	..	20 18 0
Highest	4.50	4.45	21 2 6
Lowest	4.17	4.10	20 1 1
Average	4.25	4.15 ¹ / ₂	20 6 8

* Outside market.

LEAD.

on, and had reached 380c New York by January 1st.

The following movement then took place in the Trust prices: N. Y. delivery.

January 12	Reduced	.10c to 3.70
January 28	Advanced	.10c to 3.80
February 16	"	.05c to 3.85
March 1	"	.05c to 3.90
March 5	"	.05c to 3.95
March 16	"	.15c to 4.10
March 24	"	.05c to 4.15
April 1	"	.05c to 4.20

The month of May, however, was to give one of the most interesting and sensational advances in the metal that the trade had ever seen. There had been a growing feeling that lead was selling too low, and quietly some heavy buying was done by home and export buyers, on which the independent producers seemed to have sold heavily, and the Trust late in May found themselves in complete control of the situation, and the following almost daily sensational advances were made: N. Y. delivery.

May 25	Advanced	.10c to 4.30
May 27	"	.10c to 4.40
May 28	"	.10c to 4.50
May 29	"	.25c to 4.75
June 1	"	.15c to 4.90
June 3	"	.10c to 5.00
June 4	"	.20c to 5.20
June 7	"	.30c to 5.50
June 8	"	.40c to 5.75
June 9	"	.25c to 6.00
June 10	"	.25c to 6.25

There is nothing in the annals of the trade to compare with the above advance which is equal to over 50% in 15 days. Buyers on domestic efforts to make purchases, have forced the Trust each day to advance their figures, in fact, the news that the Trust had advanced the price has been immediately the signal for speculators and dealers to bid instantly a premium of $\frac{1}{8}$ c to $\frac{1}{4}$ c over the Trust price and thus force further advances. Buyers seem to have lost all sense of proportion, and seem to be overhauled the rapid and heavy advance that has taken place. Also that lead does not enter largely into war munitions, and that the production of lead increased during 1914 over 100,000 tons in this country and the average price for lead during that

year was 3 $\frac{3}{4}$ c. However, buyers seem as excited as ever, and prices will probably go higher before the market recovers from its present intoxication.

COMPOSITE METAL PRICES.

Computation for June 1, 1915.

Pounds.	Metal.	Price.	Extension.
2 $\frac{1}{2}$	Spelter (St. Louis)	22.50	56.250
4	Lead (St. Louis)	4.82 $\frac{1}{2}$	19.300
3	Copper (Electro)	18.75	56.250
	Tin (New York)	38.00	19.000
10 pounds			150.800
One pound			15.0800

Monthly averages:

	1912.	1913.	1914.	1915.
January	9.778	10.987	9.105	8.836
February ...	9.677	10.260	9.294	9.878
March	9.886	10.024	9.026	10.977
April	10.277	10.198	8.844	11.977
May	10.168	10.163	8.668	13.063
June	11.014	9.648	8.431	.....
July	11.043	9.398	8.345	.....
August	11.092	10.025	9.111	.....
September ..	11.575	10.350	8.067	.....
October	11.596	10.029	7.500	.....
November ...	11.372	9.590	7.873	.....
December ...	11.219	9.053	8.400	.....
Year	10.750	9.977	8.555	.....

WATERBURY COPPER AVERAGES.

The Waterbury averages for the month of May, 1915, were as follows:

	Cents.
Lake Ingot Copper	22.50
Brass Mill Spelter	20.55

	1911.	1912.	1913.	1914.	1915.
Jan. 12.87 $\frac{1}{2}$	14.50	17.00	14.75	14.12 $\frac{1}{2}$	15.25
Feb. 12.75	14.50	15.50	15.12 $\frac{1}{2}$	15.25	.....
Mar. 12.50	15.00	15.12 $\frac{1}{2}$	15.00	15.75	.....
Apr. 12.50	16.00	15.75	14.87 $\frac{1}{2}$	18.50	.....
May 12.37 $\frac{1}{2}$	16.37 $\frac{1}{2}$	15.87 $\frac{1}{2}$	14.75	22.50	.....
June 12.62 $\frac{1}{2}$	17.50	15.37 $\frac{1}{2}$	14.37 $\frac{1}{2}$	.....	.....
July 12.75	17.75	14.75	14.12 $\frac{1}{2}$	.....	.....
Aug. 12.75	17.75	15.62 $\frac{1}{2}$	13.00	.....	.....
Sep. 12.62 $\frac{1}{2}$	17.87 $\frac{1}{2}$	16.87 $\frac{1}{2}$	2.87 $\frac{1}{2}$	.....	.....
Oct. 12.50	17.75	16.87 $\frac{1}{2}$	12.25	.....	.....
Nov. 12.87 $\frac{1}{2}$	17.75	16.25	12.25	.....	.....
Dec. 13.87 $\frac{1}{2}$	17.75	15.00	13.50	.....	.....
Av., 12.75	16.71	15.83	13.91	.....	.....

COPPER.

COPPER IN MAY.

At the active market and heavy buying during April which advanced the price of Electrolytic in April from 15.50c to 18.3c, cash New York, the market during the month of May was comparatively quiet with very little change in price. Opening at 18½c for Electrolytic cash New York, the market advanced early in the month to 18¾c, weakening to 18½c on May 19th and closing at 18.50c, the average price for the month according to our records being 18.60c.

At various times during the month there were reports of large inquiries from abroad, but they do not seem to have materialized into business. At times the market was inclined to be nervous and unsettled over the fears of what developments might follow the "Lusitania" incident and the American note to Germany, but these fears had little effect on the price, for the reason that producers were heavily sold up, and the market was almost entirely bare of lots in second hands.

At various times during the month there were reports that Germany had been a large buyer of copper in this country, although no metal apparently has found its way to Germany.

Nearly all the increased purchases for consumption of copper in America for the past two or three months can be traced to war orders and this has kept the brass mills running at full capacity day and night, and they are reported to be booked for orders for their full capacity to the end of the year.

There had been very little if any improvement in the consumption of copper for home industrial purposes, but during the closing week of May an upward movement was started in London in Standard copper from £75 5s which has carried the price to £83 10s at the time of present writing, June 10th, and during the opening days of June, partly on account of this firmer speculative market, and also on account of mental conditions caused in the trade by the sharp advances in other metals, many American consumers not connected with war orders became very free buyers. A very large business has been done, which

has carried the price in 18¾c for Electrolytic, at which May closed, to 19½c cash on June 30th, the market closing very strong.

A great expansion in the trade demand for copper began several months ago, and there is every prospect that this volume of business will keep up for some time to come.

No statistics are available, but the present consumption is undoubtedly enormous, and in spite of the increased production American producers stocks have undoubtedly been decreased and probably do not now exceed 100,000,000 pounds.

COPPER PRICES IN MAY.

— New York — London.				
Day.	Lake. Cents.	Electro. Cents.	Casting. Cents.	Standard. £ s. d.
1	.....	.....	.....	.....
2	.....	.....	.....	.....
3	18.75	18.50	17.50	76 10 0
4	18.75	18.43½	17.43¾	76 0 0
5	18.75	18.62½	17.62½	78 5 0
6	18.87½	18.68¾	17.62½	78 5 0
7	19.00	18.75	17.75	79 10 0
8	.....	.....	.....	.....
9	.....	.....	.....	.....
10	19.00	18.75	17.75	79 10 0
11	18.87½	18.62½	17.62½	77 12 6
12	19.00	18.75	17.75	80 0 0
13	19.00	18.75	17.50	78 17 6
14	19.00	18.75	17.50	78 0 0
15	.....	.....	.....	.....
16	.....	.....	.....	.....
17	19.00	18.62½	17.37½	77 15 0
18	18.87½	18.62½	17.37½	77 10 0
19	18.62½	18.37½	17.25	75 5 0
20	18.62½	18.50	17.12½	75 17 6
21	18.62½	18.43¾	17.06½	75 5 0
22	.....	.....	.....	.....
23	.....	.....	.....	.....
24	18.62½	18.43¾	17.06½	75 5 0
25	18.62½	18.50	17.06½	76 0 0
26	18.68¾	18.60	17.18¾	76 15 0
27	18.68¾	18.60	17.18¾	77 5 0
28	18.87½	18.68¾	17.37½	78 15 0
29	.....	.....	.....	.....
30	.....	.....	.....	.....
31	.....	.....	.....	79 2 6
Highest	19.12½	18.87	17.87½	80 0 0
Lowest	18.50	18.25	17.00	75 5 0
Av'ge	18.842	18.661	17.406	77 0 0

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37½	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.21	15.73	14.44	18.81
June	12.63	17.43	15.08	14.15	.....
July	12.52	17.37	14.77	13.73	.....
Aug.	12.70	17.61	15.79	12.68	.....
Sept.	12.57	17.69	16.72	12.44	.....
Oct.	12.47½	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av.	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	18.60
June	12.55	17.29	14.85	13.81	.....
July	12.62½	17.35	14.57	13.49	.....
Aug.	12.57½	17.60	15.68	12.41½	.....
Sept.	12.39	17.67	16.55	12.09	.....
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50½	14.47	12.93	.....
Av.	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of Casting Copper in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.33	14.18	16.48
May	12.08	16.01	15.45½	14.00	17.41
June	12.40	17.08	14.72	13.65	.....
July	12.49½	17.09	14.40½	13.34½	.....
Aug.	12.42	17.35	15.50	12.27	.....
Sept.	12.23	17.51	16.37½	12.00	.....
Oct.	12.21	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56½	17.34	14.22	12.83½	.....
Av.	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since September 1, 1914 are given in the following table together with the price of Lake copper on the same dates:

1914—	Sheet Copper.	Lake Copper.
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19 ...	17.00	12.25
November 23 ...	17.50	12.62½
December 1,	18.00	12.90
December 15 ...	18.50	13.50
1915—		
January 16	18.75	13.75
January 21	19.00	14.12½
January 25	19.50	14.37½
January 29	19.75	14.62½
March 22	20.25	15.12½
March 25	20.50	15.43½
March 27	20.75	15.75
April 8	21.00	16.50
April 13	21.25	16.62½
April 14	21.50	16.75
April 17	22.00	17.00
April 19	22.50	17.62½
April 22	23.00	18.00
April 28	24.00	18.93¾

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914.	1915.
January ..	31,229	25,026	36,018	26,193
February ..	31,894	26,792	34,634	15,583
March ...	27,074	42,428	46,504	30,148
April	22,591	33,274	35,079	16,822
May ...	32,984	38,601	32,077	28,884
June ...	26,669	28,015	35,182	.....
July	26,761	29,596	34,145	.....
August ..	29,526	35,072	16,509	.....
September	25,572	34,356	19,402	.....
October .	25,020	29,239	23,511	.....
November	19,171	29,758	24,999	.....
December	29,474	30,653	22,166	.....
Total ..	327,965	382,810	360,229	.....

SPELTER.

SPELTER IN MAY.

During April spelter had a sensational advance from 9.30c f.o.b. E. St. Louis to 12.15c, but since then there has been an even more sensational rise. Opening on May 1st at 13 $\frac{1}{2}$ c after a few days of slight irregularity the market has advanced almost daily, closing for May at 20.15c and advancing up to the 4th day of June to 26 $\frac{1}{2}$ c. Since then the market has suddenly become very weak. On slight pressure to sell on the part of consumers the market has declined in three days to 24 $\frac{1}{2}$ c for spot, to-day June 10th, while the last quarter of the year is offered at 22c.

It is difficult to really know where the market is as there seems to be no buyers. The recent advance has been accompanied by excited heavy buying day after day for deliveries running up to the end of the year, and it was not a question of price, but to find someone who would offer spelter at any price. The basis for this large buying has been war orders for brass. It is believed that the entire brass industry of the country has taken orders sufficiently to keep their mills running full day and night to the end of the year. It is also probably true that they have bought enough spelter to cover all the munition orders they can make this year. This is not enough to take care of our present production as whereas last year the production was around 350,000 tons, it has since been increased so that at present the rate of production is about 500,000 tons.

The American galvanizing trade which usually consumes 60% of our output is completely demoralized, and for American industrial purposes the country is not using more than 50% of our present output, of course, excluding war orders. The question is, can war orders and exports take care of the other 50%?

This has become a grave question and the market has become weak as mentioned above. To explain where the enormous purchases in May for spelter have gone for, there is a suspicion that German interests have been buying up the supplies of spelter in this country, in order to keep the metal away from the ammunition makers, and thereby curtail the amount of ammunition

that could be furnished to the allies. Subsequent investigation leads us to believe that there is more truth in this than the outside trade are inclined to believe, for there is evidence of hand that some very large purchases have been made by firms who do not regularly use spelter themselves and who are not known to hold any war contracts, and it would be interesting to know what they intend to do with it. Germany cannot prevent the shipments of ammunition to the allies, submarines notwithstanding, but it is quite logical that they may try and coral the raw material needed in the manufacture of ammunition and in that

SPELTER PRICES IN MAY.

Day.	New York. Cts.	St. Louis. Cts.	London. £ s d
1			
2			
3	14.00	13.75	66 0 0
4	13.62	13.25	66 0 0
5	13.62	13.25	65 0 0
6	13.62	13.25	64 10 0
7	13.75	13.50	64 0 0
8			
9			
10	14.00	13.62	62 0 0
11	14.12	13.87	62 0 0
12	14.12	13.87	61 10 0
13	14.12	13.87	61 10 0
14	14.50	14.12	61 10 0
15			
16			
17	14.87	14.50	62 10 0
18	15.37	15.12	66 10 0
19	16.00	15.75	67 10 0
20	16.25	16.00	70 0 0
21	16.50	16.25	71 0 0
22			
23			
24	18.00	17.75	71 0 0
25	18.00	18.75	71 0 0
26	19.50	19.25	73 0 0
27	20.25	20.00	75 10 0
28	21.25	20.75	80 0 0
29			
30			
31			84 0 0
Highest ..	21.50	21.00	84 0 0
Lowest ...	13.50	13.00	61 10 0
Average ..	17.825	17.525	68 1 31

SPELTER.

way limit the exports to her enemies. The papers are publishing stories of how the German interests have been endeavoring to obtain control of some of the largest gun and ammunition works in this country, and it is quite within the bounds of possibility that she has simultaneously been buying through her agents here that most necessary metal, spelter. This war is costing Germany probably \$10,000,000 to \$20,000,000 daily, so a few million dollars put into spelter would be nothing to her. But England is spending over \$10,000,000 a day and intends to have all the ammunition she requires irrespective of cost, and therefore can be expected to overbid Germany on anything that she needs. The real sufferer is the American consumer and it may be part of the German program to make matters so bad for our users of spelter that our government will be induced to put an embargo on the exports of spelter and spelter products, including brass goods. We cannot imagine conditions becoming so bad as to warrant such an action but if it should happen by any chance it would knock the spelter market into a cocked hat, as we are producing nearly twice as much spelter at the present time as we are using for our own industrial requirements. If an embargo was placed on the metal it would be dear at 6c per pound.

The whole situation is an intensely in-

SPELTER PRICES IN ST. LOUIS.

Extreme fluctuations of Prime Western Spelter, East St. Louis delivery, by months and years.

— 1914 —			— 1915 —		
High.	Low.	Av'ge.	High.	Low.	Av'ge.
Jan. 5.25	5.10	5.14	7.62½	5.55	6.33
Feb. 5.35	5.20	5.17	10.00	7.65	8.62
Mar. 5.22½	5.12½	5.15	11.00	8.87½	9.80
Apr. 5.12½	4.85	5.03	14.00	9.25	11.22
May 5.00	4.90	4.96	21.00	13.00	15.52½
June 4.97½	4.82½	4.93			
July 4.95	4.80	4.84			
Aug. 5.00	4.70	5.45			
Sep. 5.85	4.95	5.35			
Oct. 5.00	4.60	4.81			
Nov. 5.20	4.80	4.97			
Dec. 5.65	5.20	5.49			
Year 5.00	4.60	5.11½			

teresting one. Should a heavy fall in the price of the metal take place from when it has lately been skyrocketed it would not surprise us.

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915
Jan.	5.77	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.70	11.85
Mar.	6.01	7.17	6.56	5.59	12.15
Apr.	5.85	7.07	6.08	5.50	13.85
May	5.76	7.13	5.77	5.28	20.55
June	5.89	7.25	5.50	5.37	....
July	6.11	7.46	5.61	5.26	....
Aug.	6.29	7.34	5.99	5.66	....
Sep.	6.29	7.72	6.13	5.91	....
Oct.	6.49	7.83	5.74	5.23	....
Nov.	6.90	7.74	5.60	5.38	....
Dec.	6.81	7.65	5.44	5.90	....
Av...	6.16	7.33	6.06½	5.53½	....

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc since the beginning of 1915 together with the price of spelter ruling on the same day.

1915—	Spelter Sheet Zinc, St. Louis.	
January 12	9.00	5.90
January 19	9.25	6.10
January 21 ...	9.50	6.75
January 26 ..	10.00	7.31½
February 2 ..	10.50	7.87½
February 8 ..	11.00	7.93¾
February 8	11.50	8.00
February 12 ..	12.00	8.25
February 19	12.50	9.25
March 1	13.00	10.25
March 5	13.50	11.00
April 22	13.75	12.12½
April 23 ..	14.50	12.37½
April 27	15.50	13.75
April 28 ..	16.00	13.75
April 30	17.50	13.75
May 18	18.50	15.12½
May 20	19.50	16.00
May 25	20.00	18.75
May 26	22.00	19.25
May 29	24.50	20.75
June 1	26.00	22.50
June 5	20.00	26.00
June 9	33.00	25.75

REVIEW OF THE JOPLIN ORE MARKETS.

The strongest market ever experienced in the Joplin district for zinc blende ore was during the month of May, the demand for ore of all grades was stronger, the buying was more active and the prices paid were higher than ever before, the high record price established in February of \$75 per ton was broken the last week of the month when zinc ore sold at a high base price of \$85 per ton. The condition of the market for the first three weeks of the month although very strong remained practically unchanged, zinc ore selling during the entire period at prices ranging from \$65 to \$75 per ton although the price of spelter advanced from 13½¢ per pound to 18¢ and 19¢ per pound. This advance in the price of spelter should have caused a corresponding advance in the price of zinc ore but no change was recorded until the last week of the month when spelter sold as high as 22¢ per pound. Zinc ore advanced to \$85 per ton for first grades, the price of ore as it now stands in comparison with the price of spelter is in the ratio of about 4 to 1. This ratio formerly under normal conditions has always been about 8 to 1 but as the spelter market gets stronger under present conditions the ratio between the two decreases. It is not because the smelters cannot afford to pay somewhere near the same ratio but because the making of the market price for zinc ore in the Joplin district is entirely within the hands of the zinc ore buyers who have been very successful during the recent abnormal advance in the spelter market in holding down the price of zinc ore and are now buying ore at figures that are entirely satisfactory to themselves. The lowest base price paid for zinc ore during the month of May was \$65 per ton; the highest base price was \$85 per ton, while the average price paid for all ore sold during the month was \$71.68 per ton. A total of 37,260 tons of ore was sold this month making an average of 7,432 tons sold each week or an increase of 1,477 tons per week over the sales of last month. The total sales for the year are 118,125 tons at an average price of \$63.16 per ton. These figures in comparison with the 1914 figures covering the same period show an increase of 9,637 tons of ore sold at a price \$24.05 per ton higher than the price paid last year.

The increase in tonnage still here noted occurred during the month of May when the buying of ore became so active that the greater part of the surplus ore held in the district was sold. The estimated stocks of surplus ore now held in the district are 3,680 tons, five weeks ago the estimated surplus stocks were 14,195 tons. The continued heavy buying of the smelters will probably wipe out all of the surplus ore in the next few weeks as the producers are not at present inclined to hold any of the ore produced for better prices and are selling the entire production each week. The unusually good price and the strong demand for zinc ore furnishes a powerful stimulant for an increase in the production. This increase is to be seen in the weekly sales of the district which are now better than 9,600 tons each week.

The calamine ore market for the month was equally as strong as the zinc blende market, the general tenor of the market was upward during the entire month, the lowest base price paid for calamine ore during the month was \$35 per ton, the highest base price paid was \$58 per ton. The sales of this ore for the month totaled 2,822 tons at an average price of \$42.12, the weekly sales of this ore averaged 564 tons per week showing an increase of better than 200 tons per week, showing that the production of this ore has been materially increased during the past month and still an unsatisfied demand for this ore is apparent, there is no surplus calamine ore held in the district. The total tonnage of this ore sold for the year is 9,177 tons at an average price of \$37.82 per ton showing a substantial increase in both tonnage and price covering the same period last year. The producer of Calamine ore is reaping a harvest at present prices and is working over time to increase his production.

The lead ore market for the month of May was strong although no unusual features were recorded, the demand for this ore was about normal, the buyers were able to secure their normal tonnage without any difficulty, the base price of \$51 per ton of 80% lead was paid throughout the entire month. The total tonnage sold for the month was 1,641 tons at an average price of

\$50.59 per ton, the average weekly sales were 928 tons per week. The total sales for the year are 17,548 tons at an average price of \$48.65 per ton. The estimated surplus stocks of this ore held in the district are 1,135 tons which is practically the same as that held two months ago showing that there has been practically no accumulation of this ore and that the sales each week cover the production. The attention of the operators is drawn away from the produc-

tion of lead ore by the high price and great demand for zinc ore, the lead ore is produced largely as a by-product in the mining of zinc ore and as the producer is desirous of keeping the lead out of the zinc in order to maintain a better grade of zinc ore in order to secure greater profits, it can readily be seen that there is no incentive for an increase in the production of lead ore which is now at rather a low ebb throughout the district.

SHEET ALUMINUM.

The following table, referring to aluminum sheets, shows the gauges used (Brown & Sharpe) the thickness in inches, the weight per square foot in pounds, a price per pound, delivered, the corresponding price per square foot, and the closest number in the sheet zinc list corresponding to the thickness, the sheet zinc numbers being those used by sheet zinc manufacturers. The aluminum prices are furnished by a leading manufacturer, and are largely nominal, being based upon 22c ingots, but it is represented that material will be sold at these prices to trades that are likely to involve continuous patronage. The aluminum prices are on sheets 3 to 60 inches wide in the case of 20 gauge and heavier on sheets 3 to 30 inches wide for gauges 21 to 30 inclusive.

Aluminum Sheets.

Gauge.	Thickness, Inch.	Weight, Pound.	Price, Pound.	Cost, Sq. ft.	Zinc number.
20	.0320	.445	28.90c	12.86c	13
21	.0285	.396	29.90	11.84	12+
22	.0253	.353	29.90	10.55	11+
23	.0226	.314	29.90	9.39	11—
24	.0201	.280	29.90	8.37	10+
25	.0179	.249	30.90	7.69	9—
26	.0159	.222	30.90	6.86	8—
27	.0142	.200	31.90	6.38	7+
28	.0126	.176	32.90	5.79	6+
29	.0113	.157	33.90	5.32	6—
30	.0100	.140	34.90	4.89	5

Thus sheet zinc of equal thickness costs on a 30-cent basis something like three times as much as aluminum while weight for weight there is not much difference. Sheet aluminum 30 gauge compared with 28 gauge galvanized at 5.00c per pound costs 25% more per square foot, weighs 18% as much and is one-half as thick.

ANTIMONY ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	32.07
May	9.48	8.00	8.77	7.29	39.75
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av.	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Hallett's antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	29.41
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av.	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY.

Average monthly price of Chinese and Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93
Apr.	8.34	6.87	7.82	5.82	23.97
May	8.06	6.98	7.15	5.78	34.71
June	7.38	7.07	7.62	5.62½	.....
July	7.32	7.37	7.55	5.44	.....
Aug.	7.22	7.58	7.18	13.05	.....
Sep.	7.13	8.00	7.31	9.79½	.....
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Av.	7.48	7.63	7.43	8.53½	.....

ALUMINUM and SILVER PRICES IN MAY.

Aluminum. — Silver —
New York. New York. London.

Day.	Cents.	Cents.	Pence.
1 .....	.....	50½	23½
2 .....	.....	.....	.....
3	19.37½	50½	23½
4	19.37½	50½	23½
5	19.37½	50	23½
6	19.50	50	23½
7	19.62½	50	23½
8 .....	.....	50	23½
9 .....	.....	.....	.....
10	19.62½	50½	23½
11	19.62½	50½	23½
12	19.75	50½	23½
13	19.75	50	23½
14	20.00	50	23½
15 .....	.....	50	23½
17	21.50	50	23½
18	22.00	49½	23½
19	22.00	49½	23½
20	23.00	49½	23½
21	24.00	49½	23½
22 .....	.....	49½	23½
24	25.00	49½	23½
25	25.50	49½	23½
26	26.00	49½	23½
27	26.00	49½	23½
28	26.00	49½	23½
29 .....	.....	49½	23½
30 .....	.....	.....	.....
31 .....	.....	.....	23½
Highest	26.50	50½	23½
Lowest	19.25	49½	23½
Average	21.85	49.915	23.57

ALUMINUM AND SILVER PRICES.

— New York —
—Aluminum— —Silver—

	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.93	57.56	48.89½
Feb.	26.20	18.80½	19.20	61.64	57.50½	48.48
Mar.	26.72	18.30	18.95	57.87	58.07	50.24
Apr.	26.91	18.08	18.83	59.49	58.52	50.25
May	25.95	17.93	21.85	60.36	58.18	49.91
June	24.79	17.82	.....	58.99	56.47	.....
July	23.34	17.59	.....	58.72	54.68	.....
Aug.	22.73	20.38	.....	59.29	54.34	.....
Sep.	22.00	19.28½	.....	60.64	53.29	.....
Oct.	20.32	18.25	.....	60.79	50.65	.....
Nov.	19.49	18.83	.....	58.99	49.10	.....
Dec.	18.85	19.02	.....	57.76	49.38	.....
Av.	23.67	18.59½	.....	59.79½	54.81	.....

ANTIMONY — ALUMINUM

ALUMINUM IN MAY.

After remaining for months at around 19c there developed early in May a large demand supposed to be in connection with war orders, and there has been a rapid advance in price from 19½c to 26c, at which the market closes. Both the American producers and the importers appear to be sold up for the next 60 days.

The latest statistics showed that there was imported during March 765,297 pounds of aluminum as against 1,481,531 pounds in the corresponding month last year, while for the nine months ended March the imports were as follows:

	Pounds.
1915	11,253,760
1914	12,340,042
1913	19,315,592

ANTIMONY IN MAY.

Compared with previous months since the war the movement in the price of antimony during May has not been very exciting. Opening at 34c for Chinese and Japanese for spot delivery the market improved to 35c about the middle of the month, but on arrivals of some lots from the East and a dull spot demand, the price eased to 34½c to 34¾c at which the market closed for the month. Since then there has been an active demand and prices have advanced on June 10th to 36½c. The English brands of antimony such as Cooksons,

Halletts and A. S. P., are unobtainable, stocks being exhausted here and the embargo on shipment from abroad continuing. The antimony position seems to be very strong, and no new features in the situation since those covered in last month's Digest.

ANTIMONY PRICES IN MAY.

Day.	Cooksons. Cts.	Chinese and Japanese.
		Cts.
3	39.00	34.00
4	40.00	34.50
5	40.00	34.50
6	40.00	34.50
7		34.75
10		35.50
11		35.50
12		35.50
13		35.00
14		34.50
17		34.75
18		34.75
19		34.75
20		34.50
21		34.50
24		34.50
25		34.50
26		34.50
27		34.50
28		34.75
Highest	40.00	36.00
Lowest	38.00	33.00
Average	39.75	34.712

CHINESE AND JAPANESE ANTIMONY.

Average monthly prices of Chinese and Japanese Antimony in New York.

	1910.	1911.	1912.	1913.	1914.	1915.
January	7.50	7.15	6.89	8.77½	6.03	15.24
February	7.44	7.53	6.78	8.16	6.00	17.62
March	7.33	8.75	6.78	7.91	5.94½	20.93½
April	7.31	8.34	6.87	7.82	5.82	23.97
May	7.30	8.06	6.98	7.75	5.78	14.71
June	7.30	7.38	7.07	7.62	5.62½	
July	7.29	7.32	7.37	7.55	5.44	
August	7.25	7.22	7.58	7.48	13.05	
September	7.22	7.13	8.00	7.31	9.79½	
October	7.15	6.94	9.11	6.46	11.64	
November	7.13	6.94	9.11	6.28	14.14	
December	7.03	6.97	9.05	6.05	13.15	
Average	7.27	7.48	7.63	7.43	8.53½	

CLASSIFYING COMMERCIAL COPPER.

A Discussion of the Differences Between Lake and Electrolytic Copper— Properties of Each Defined.

(BY LAWRENCE ADDICKS).

Any adequate classification of a material of commerce such as copper must take into account both the limitations of the metallurgical processes by which the material has been obtained and the needs of the manufacturing processes in which it is to be employed. The metallurgical methods depend in turn upon the nature of the ores or other sources of supply and the manufacturing ones upon the ultimate uses of the finished product.

The world's copper supply comes from four main sources, sulphide ores, oxidized ores, native ores and scrap. Perhaps the chief chemical characteristic of copper is its affinity for sulphur and the largest deposits of copper ores consist of more or less complex sulphides. Near the surface these ores are frequently altered to oxides and carbonates by atmospheric influence and there are also large deposits entirely free from sulphur. Native copper ores where the copper exists as free metal occur in various parts of the world in small quantities but notably in the enormous deposits in the northern peninsula of Michigan where they form the source of the so-called Lake copper.

Metallurgically there are three typical processes for producing crude or unrefined copper from the ore, based on the general principles of oxidizing sulphides and reducing oxides, (a) roasting, smelting and converting, (b) alternate oxidation and reduction and (c) direct reduction of oxidized ores. The first method is a strongly oxidizing process by which the great majority of the American production is made from sulphide ores, results in the almost complete elimination of impurities which have volatile oxides, including some of the worst enemies of refined copper, such as arsenic. Converter bar nearly always runs 99% copper plus silver and is not likely to carry more than a few hundredths of a per cent of any impurity but nickel. The second method is the old Welsh process, still used to some extent abroad, based upon the reaction between copper oxides and sulphides to eliminate sulphur as sulphur dioxide gas and carried out in a long series of roasts and fusions in reverberatory furnaces. The

removal of impurities is here imperfect although they may be to a certain extent segregated in a portion of the product, whence the origin of the "Best Selected" copper of Great Britain. When the ores are wholly oxidized the copper may be recovered by direct reduction in a blast furnace and as this is a strictly reducing process the resulting black copper seldom runs over 96%, due to iron and other impurities reduced.

Except in the case of "Best Selected" and similar English coppers, all of the products from the foregoing processes are given a further treatment or refining, which may be broadly divided into furnace or fire refining and electrolytic refining.

Fire refining is based upon the scorifying effect of cuprous oxide upon base metals contained in a bath of molten copper. The crude copper is melted in a reverberatory furnace and air blown into the bath. Cuprous oxide rapidly forms and dissolves in the bath, the blowing being stopped at or before the saturation point. In this way oxygen is carried to all parts of the molten bath and when there are any metals present which are more easily oxidized than copper, cuprous oxide is reduced back to copper and the oxide of the impurity is formed. If this oxide is not soluble in the molten copper it will float to the surface where it may be removed by skimming. As copper stands high among metals in the order of nobility the metallic impurities with the exception of the precious metals may be readily removed in theory. In practice while elimination proceeds rapidly while considerable quantities of impurities are present, the rate diminishes until traces are reached which cannot be slagged off with any reasonable amount of scorifying. Therefore furnace refining is limited in its application to relatively pure crude copper unless a low grade refined copper is contemplated. Less than \$10 worth of silver and gold per ton will justify electrolytic refining.

Returning to the bath of molten copper which has been skimmed clean, it is necessary to reduce the excess cuprous oxide dis-

solved, and no better way has yet been devised than the old Welsh process of covering the bath with a protecting layer of charcoal or low sulphur coke and then forcing the butts of green trees or poles of hardwood beneath the surface by means of suitable tackle. The cuprous oxide is reduced in this way until a normal amount corresponding to an oxygen content of from 0.04 to 0.07% is left when the copper develops its best physical characteristics, the condition of the copper being followed by the appearance of the fracture of small buttons cast in a spoon or "sag ladle" which is a sort of ductility test and by the swell or depression of the surface of an ingot as it cools, which indicates the gas content. The copper is then cast by means of one of the several types of ladling machines which have been very successfully developed in recent years.

When the copper is to be electrolytically refined it is first given a rough furnace refining and cast into anode plates, which are then electrolyzed in a strongly acid solution of copper sulphate. The same order of nobility applies, but the great preponderance of copper over the impurities is now an aid as it assists the selective action of the current in depositing only copper at the cathode. Silver and gold are also saved as they are insoluble in the electrolyte chosen and fall to the bottom of the tank as anode mud or slimes to be separately refined and parted.

It is quite evident that copper entering an electrolytic refinery must entirely lose its identity and that the purity of the resulting cathode copper will depend upon the conditions under which electrolysis is carried out rather than upon the momentary quality of the day's anodes. Therefore it is not necessary to consider whether the input be converter bar, black copper or Lake mineral when buying electrolytic, but simply whether the product meets the accepted standards of quality for electrolytic copper.

Electrolytic cathodes should be very pure. They generally run about 99.95% copper, much of the missing 0.05% probably being hydrogen. The metallic impurities generally total about 0.02%. Except for the fact that individual cathodes may vary more or less in impurity content they are ideal material for brass making. Copper producers, however, have never encouraged the sale

of cathodes, as there is apt to be some shrinkage in weight during shipment owing to the comparative ease with which nodules or small pieces can be detached either accidentally or intentionally. Also cathode shipments unbalance the work in a refinery in proportion to their magnitude, as melting cathodes into market shapes is a distinct part of the process.

This melting is done in a reverberatory furnace and originally was an exact duplication of the fire refining already described. As the cathode copper is already pure, a simple melting is all that should be required but molten copper is so susceptible to contamination that until recently the gases from combustion, iron in the rabbles, etc., were absorbed to a sufficient extent to require actual quantities of cathodes are being added to the molten charge during ladling and earlier, basic furnaces are being substituted for acid ones, thereby suppressing slag formation, and attention is being paid to keeping coal ashes from blowing over from the firebox, so that a true melting without refining is being approached. It is well known that cathode copper when drawn into wire will show an electrical conductivity some 2% higher than the same copper after a subsequent fire refining. This is probably due partly to the fact that chemical impurities in the cathode are chiefly present as a mechanical mixture due to adherence of anode slimes which are dissolved in the copper when melted, making a high resistance matrix around the copper crystals when the metal is cast and cooled; and partly to contamination during melting. It seems probable that the conductivity of perfectly pure, soft copper is in the neighborhood of 103% of the Matthiessen standard in common use.

Lake ores are low grade native copper deposits, which are mechanically concentrated to an 85% mineral. This is melted and after skimming off the slag formed by the remaining gangue, is given a fire refining as previously described. The Michigan mines are among the oldest largest and deepest in the world. Thirty years ago Lake copper was the standard of the industry. The surface ores were remarkably free from objectionable impurities and copper of the highest conductivity was readily produced. The first electrolytic copper to come on the market was of irregular character due to lack of familiarity with the prin-

ciples of this new process and for a considerable time Lake copper was deservedly considered superior. With increasing depth, however, many of the mines showed increasing quantities of arsenic and indeed all Lake copper may be considered as arsenical copper, although in some brands the arsenic is very low. The result was that electrolytic copper began to take precedence for electrical work, as its conductivity could be absolutely depended upon, and Lake began to fall back upon superior "working" qualities, a term which defied exact definition. It is now generally admitted that high conductivity Lake copper cannot be distinguished from electrolytic copper, while low conductivity Lake is really an alloy of copper with arsenic which has certain desirable properties for special uses. Nearly all the elements which markedly depress the conductivity when alloyed with copper are helpful in developing desirable mechanical properties, for example, phosphorus, aluminum and silica. High arsenical copper running about 0.4% arsenic has now a special market for making fire-box plates in Germany, and uses are beginning to be found for the intermediate grades. One of the large Lake companies maintains its own electrolytic refinery, and in this way recovers a small amount of silver and eliminates the arsenic, the product still being classed on the market as Lake, although it is equally electrolytic. The old prejudice in favor of Lake on general principles has now largely died out but only with the contemporaneous retirement of the older generation of wire mill managers. Lake copper should be clearly graded by arsenic contents into a series of alloy coppers, the class at one end competing with electrolytic on its own ground, and the other classes sold in competition with arsenical copper from other sources, a field which has only lately been properly appreciated.

The last class of copper produced which we have to consider is that generally known as casting copper, a very loose term covering a multitude of sins. There are three main sources of casting copper (a) from converter bar or black copper from smelters whose ore supply carries quantities of silver and gold insufficient to pay for refining, (b) by-product copper not up to standard electrolytic copper occasionally produced by refineries and (c) the result of smelting scrap reclaimed from all sorts of new and

old work. The first is often of excellent quality, one well known brand being maintained at 99.80% copper or better, and is generally comparable with English best selected. The second class is generally an arsenical copper and now is not often seen as the refineries are nowadays able to eliminate arsenic from the process in other ways. The third class is generally foul, but often suitable for common castings as the impurities help the founding, pure copper being a difficult metal to handle in a foundry. The copper contents may, however, run below 99%.

Specifications for Lake and Electrolytic copper may be readily drawn and after a thorough investigation the American Society for Testing Materials has issued a set which should be generally accepted by engineers, as it has already been by the large refineries and wire mills. Casting copper presents a specification problem hopeless of solution at the present time, as there are well known brands in the market with the widest imaginable range of impurities, all of which are being kept consistently within a certain range of quality for each individual brand and which find a market for various special uses. About the one thing that can be said of casting copper is that neither a conductivity nor a ductility test is applicable in the nature of things.

Turning now to the uses for copper, they may be broadly classified as follows: (a) wire and other shapes for electrical purposes; (b) sheets and plates for non-electrical uses; (c) copper castings, generally for electrical use; (d) in alloys such as brass and bronze; (e) special purposes for which small quantities of alloyed impurities may be advantageous.

Electrical use immediately imposes a conductivity requirement which rules out everything but electrolytic and high conductivity lake, which, as before stated, are practically identical coppers. Most of the electrolytic refineries figure on averaging about 100.0% soft in the electrical conductivity of their outputs. Occasional lots may reach nearly to 101.0% and some may approach 99.0%, while 98.5% is the usual rejection limit, but it is very unusual for a refinery to ship anything for electrical use which is below 99.0%. No distinction is made between cakes, wirebars and ingots, more than one shape often being cast from a single furnace charge, so that there is

nothing to be gained by ordering wirebars and then cutting them up, when ingots are desired. Unless electrical use is specified it is customary to allow an additional lee-way of 1% in conductivity to the refiner, but he rarely needs this and prefers to maintain the higher standard, as copper is often resold several times before it comes into the hands of the actual user. As copper from a single furnace charge will carry practically uniform chemical impurities, shipments on an individual order should be filled from as few furnace charges as possible and all wire bars and cakes should be stamped with marks identifying these charges. The refiner will always consider complaints on a furnace charge basis if they are of a chemical nature. If they are indefinite he will generally investigate what other customers received copper from the charge complained of, and in the absence of other complaints will demand a bill of particulars before giving the matter serious consideration. The conductivity of a furnace charge is generally determined at the refinery several times while the charge is being cast and this precaution together with the ample margin above rejection limits which is maintained, have practically abolished conductivity complaints.

When copper is not to be put to an electrical use conductivity is of no special value except as a certificate of the absence of more than a trace of a certain class of impurities. The refiner divides impurities into three classes; those that depress conductivity, such as arsenic and antimony; those that impair ductility, such as lead, tellurium and bismuth; and those which are of value if reclaimed, such as silver, gold, platinum and palladium. The elements which depress conductivity are kept within bounds by the conductivity test regularly made. Those which are of value if reclaimed will never reach quantities sufficient to affect the physical properties of the copper as it would pay to re-refine any such copper. The remaining class comprising elements which impair ductility is more difficult to deal with. We know that bismuth, lead, tellurium and probably selenium make copper very brittle even when present in very small quantities. We do not know, however, how to write a specification limiting these impurities as the presence of small amounts of other impurities will neutralize their bad effects. We do know that amounts

of lead up to 0.005% have no perceptible effect in mill practice or in alloys. Double this amount shows mild effects. Lead is about the only one of the group ever met with in sufficient quantity to be of interest. As these elements are practically insoluble in copper their effect on the conductivity is directly proportional to the amount present and for that reason is negligible. It must be understood that an element like lead is always present in small amounts in refined copper and the mere fact of its presence as shown by a delicate qualitative test is no basis for complaint. It should be further borne in mind that the determination of the small quantities of impurities in refined copper quantitatively can only be done with even reasonable accuracy by a chemist who has had large experience in this particular work. A representative analysis of refined electrolytic copper would be somewhat as follows:

	Percent.
Conductivity (annealed).....	100.0
Copper	99.93000
Silver	0.00100
Gold	0.00001
Sulphur	0.00300
Oxygen	0.04000
Iron	0.00350
Nickel	0.00400
Arsenic	0.00200
Antimony	0.00300
Aluminum	0.00100
Phosphorus	Trace
Lead	0.00200
Bismuth	Trace
Selenium	0.00050
Tellurium	0.00050
	99.99051

It will be seen that oxygen is the chief impurity. It has been pretty conclusively shown that too much oxygen makes the copper harder and affects the annealing temperature, the tensile strength of wire and the number of breaks in a wire machine. This may be due to some surface effect as the "set" surface of a wire bar has a greater oxygen content than the body of the bar and as the oxygen content increases it is possible that this oxidized layer becomes thicker. Another point about high oxygen is that it corresponds to low copper contents and to that extent is sold as copper. In brass making the "set" or "pitch" of the ingot is of no consequence except

when the most careful work is done when melting in the foundry to avoid further absorption of oxygen. It is obviously useless to impose rigid conditions upon the refiner if the same conditions are not observed in the remelting and it is only at the largest and best equipped brass foundries that such conditions are even approached. When zinc is introduced into molten copper it acts as a deoxidizing agent, forming zinc oxide. If the copper is kept at very high pitch this source of zinc loss and dirty brass can be greatly diminished and this fact has resulted in a demand for high copper content in ingots.

It has, therefore, become a general custom to specify that the copper contents of refined copper shall not be less than 99.88%, which really means 99.99%, allowing 0.02% for assay variations. As this is a rejection point the actual average content is expected to be between 99.92% and 99.94%.

When we come to casting copper a far greater leeway must be allowed, as already pointed out. In fact, except in considering the price charged for the material, copper contents has but little to do with casting copper. It is best to buy this material on the basis of known brands after finding what brands yield good results in the particular class of work and then insist upon uniform deliveries, judging the material by chemical analysis of the chief impurities.

The physical defects of refined copper are many. Practically all cast copper is porous, doubtless due to the discharge of dissolved gases as the copper cools.

This is analogous to the "piping of steel

ingots, but is quite so pronounced in case copper is cast in a shallow mold instead of on a mold. These numerous gas bubbles are doubtless the cause of roughness in wire. Then there is a class of defects inseparable from ladling, consisting of cold sets and splashes where the copper has run up on the mold and chilled before the main body of metal reaches that point. Then there is porosity or sponginess of the surface due to the mold being either too hot or too cold. Another defect is raised edges on the set surface, generally due to a slightly lowered pitch corresponding to excessive oxygen content of the copper. Should the pitch drop still lower "nigger heads" or little black spots will appear. These are the outlets of gas cavities extending some distance into the copper. On the other hand, should the oxygen content be too low the surface of the bar rises and finally breaks open or "spews", an even worse condition.

Many of these defects are always present in more or less degree. Mechanically ladled copper can never be perfect. Specifications require that copper shall be free from mechanical defects, but a reasonable attitude regarding minor troubles on individual pieces is generally necessary to the peace of mind of a buyer. On the other hand, a refiner occasionally becomes careless in such matters and will send out some surprisingly bad work, so that careful, systematic inspection combined with an attitude of friendly criticism inspection combined with an attitude of friendly criticism is the best way for the copper producer and a copper user to live together.

WORLD'S COPPER PRODUCTION.

Compiled by Henry R. Merton & Company, Ltd., London.

(In tons of 2,240 pounds).

	1914.	1913	1912.	1911.	1910.	1909.	1905.	1900.
Africa:								
Katanga	10,000	6,790	2,345	1,000	.....	.....	.....	.....
Cape Co.	3,455	3,220	3,870	4,480	4,405	4,645	5,025	4,420
Namaqua	2,300	2,500	2,500	2,500	2,500	2,300	2,300	2,300
Sundries	*8,000	10,000	7,655	9,000	8,300	8,000	415	.....
Total	23,755	22,510	16,370	16,980	15,205	14,945	7,740	6,720
Argentina								
		115	330	1,020	300	600	155	75
Australasia								
	37,000	46,580	47,020	41,840	40,315	34,400	33,940	22,020
Austria								
	*4,000	3,765	3,860	2,440	2,130	1,615	1,175	865
Bolivia—Coro-Coro								
	2,700	3,600	1,850	1,800	2,500	*2,000	*2,000	2,100
Canada								
	33,810	34,365	34,710	24,930	25,715	24,105	20,535	8,500
Chili								
	35,145	39,385	37,305	20,595	35,235	35,785	29,165	25,700
Cuba								
	6,525	3,325	4,325	3,695	3,475	2,960	.....	.....
England								
	*400	420	300	400	450	435	715	650
Germany—Mansfeld								
		19,980	20,180	20,520	19,995	18,715	19,565	18,390
Other German								
	*30,000	4,930	5,040	1,490	4,715	3,740	2,595	2,020
Hungary								
	*400	305	100	85	110	120	150	490
Italy								
	1,600	1,600	2,300	2,600	3,220	2,725	2,950	2,955
Japan								
	67,000	72,000	65,500	55,000	46,000	47,000	35,910	27,840
Mexico—Boleo								
	11,300	12,795	12,450	12,165	12,795	12,230	10,185	11,050
Other Mexican								
	23,580	39,185	60,005	48,740	48,720	44,095	54,255	*11,000
Newfoundland								
	.....	.....	540	1,155	1,080	1,380	2,280	1,900
Norway—Sulitelma								
	4,725	4,610	4,755	3,590	4,925	4,295	3,195	2,220
Other Norwegian								
	7,125	7,000	6,225	5,835	5,500	4,785	2,110	1,715
Peru								
	22,515	25,085	26,065	28,050	26,945	16,000	8,625	8,220
Russia								
	31,435	33,240	33,010	25,310	22,310	17,750	8,700	6,740
Servia								
	*4,000	6,275	7,240	6,885	4,845	4,480	.....	.....
Sweden								
	1,000	1,000	1,500	2,000	2,000	2,000	550	450
Spain and Portugal—								
Rio Tinto								
	21,515	36,320	39,925	33,385	33,575	35,370	32,280	35,732
Tharsis								
	3,600	3,220	3,375	3,395	3,495	4,355	4,345	7,965
Mason & Barry ..								
	2,265	3,135	3,540	2,920	2,955	2,365	2,720	3,460
Sevilla								
	1,435	1,510	1,390	1,530	1,630	1,820	1,280	1,460
Other mines								
	7,700	9,650	10,700	9,700	8,600	8,275	4,185	4,255
Total								
	36,515	53,835	58,930	50,930	50,255	52,185	44,810	52,872
U. S. of America—								
Calumet & Hecla								
	20,000	20,000	35,000	35,000	35,000	40,000	37,950	34,715
Other Lake								
	50,130	51,175	68,405	61,615	63,840	61,450	59,820	24,596
Montana								
	103,835	127,385	138,055	121,410	127,785	140,105	142,490	114,144
Arizona								
	167,130	178,505	159,800	134,185	133,755	130,375	99,490	49,447
Other States ..								
	165,930	170,140	153,100	331,655	124,555	118,350	49,370	40,800
Total								
	507,025	547,205	554,360	483,865	484,535	490,280	389,120	263,502
Turkey								
	*500	500	500	1,000	600	800	700	520
Venezuela								
	1,030	1,250	1,340	.....	.....	.....	.....	.....
Grand total								
	893,085	984,860	1,006,110	871,920	864,275	839,425	682,125	479,514

* Estimated.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, JULY, 1915.

NO. 7.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.
C. S. Trench, President,
C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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THE TRADE OUTLOOK.

When it is stated that the nations at present engaged as belligerents in the war, constitute over one-half the world's population, and that they formerly did nearly 65% of the world's international trade, and controlled more than 70% of the mercantile steamship tonnage, one begins to realize the gigantic proportions of the present struggle for which there is no parallel in history. Edgar Crammond, before the Royal Statistical Society, lately presented facts and statistical estimates that by July 31st the direct monetary cost alone will amount to nearly seventeen billion dollars, and the total economic loss will aggregate nearly forty-seven billion dollars. But this is only to July 31st. With few willing to believe that the war may not last for another year, and involve some of the largest nations now neutral, one begins to get some slight conception of the crisis the world is in, and the stupendous economic changes that have been created, and others to follow.

World Power in Business.

Whether we are able to keep out of the war or not, and whether the contest is to end unexpectedly this Autumn or be continued into next year, there is no country that will be more greatly affected than our own, in the new align-

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ment in finances and business which under the stress is being created, or which will come out of the present disaster so strong and powerful. The developments each day in our trade balance, and our grip on the finances of the world all point to a new world power for our country in business.

Power to Protect Our Acquirements Necessary.

Our weakness, and the only thing that threatens the position we are having forced on us by our national advantages and the logic of events, is our unpreparedness in adequate national defence by sea and land to defend and protect what we are acquiring and what we will acquire. Our commanding industrial position, and the ideals we stand for will be open to attack from the very nations who by the war have lost the trade we will have gained. We must be in a position to adequately defend if necessary, and it cannot be accomplished by citing the moral law. It is a physical proposition, and will require the ability to employ physical powers, if our trade is to be extended to the entire world. Security is the life and breath of business. We believe to-day that steps to go in and possess the new fields in foreign trade being almost forced on us, are being retarded by the timidity of capital as to our power to protect in the future our new trade possessions. Treaties and agreements to follow the war must have behind them the power to see they are properly lived up to, or at any rate to inspire in the minds of those who might be tempted to break them a goodly fear. We believe the great lesson of the war is the danger of unpreparedness.

Remarkable Change in Iron and Steel a Bull Factor.

During the past month there has been a remarkable development in the increase of business and return to prosperous conditions, only in part as a result of the enormous demands being made on us for war munitions and food supplies, etc., and it finds its more certain proof in the great change that is taking place in the iron, steel and allied trades which represent one-fifth of the country's entire production. Elsewhere in this issue we have treated with this phase of the country's business, and we consider it the most powerful bull factor in general business to-day, and foreshadowing a period of the greatest business activity and prosperity this country has ever experienced. If we were bold enough to predict this months ago when the industry was running only 30% of normal, we are justified in greater confidence now that it has recovered to 80% or more of normal. We repeat what we said then that within a year it will be proved that our steel and iron facilities are undersized for the demand they will be called upon to meet. In every direction the improvement and return to good business in all lines continue. New building, "construction", the best evidence of good times, is ahead of last year and is increasing, our crop outlook is excellent and all we can spare in this and other commodities will be needed by Europe. A good authority predicts that unless some unforeseen check is placed on shipments to Europe, this country's exports may reach in a few months the prodigious figure of \$400,000,000 per month!

No Economy in War.

Europe can employ no economy.

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while the war lasts, in food or things necessary to carry on a war which is a life and death struggle. Fortunately, we have necessities to sell, not luxuries, or the outlook for us would be very different. The money or securities will be forthcoming to pay for these necessities.

Americans Not Subject to After War Effects.

Only after the war is ended will begin the recovery of the enormous waste and destruction, by the only way in which it can be recovered, economy, and the building up under the safeguard of international security of what has been destroyed by international chaos and insecurity.

But it must be remembered that in this economy we promise to have no part. What has been the loss of Europe has been largely our gain. We promise to have enormous profits with which to exploit our new commercial position in the world.

If America is Involved in War, Means Greater Business Activity.

Even should we be forced to become a belligerent it will only mean a still greater business activity, as our part will be to produce in greater quantity under pressure of administration aid, the materials our allies will need to win the contest in which we are a partner.

Was there ever such a prospect as that which is facing us, and how soon will it begin to excite the imagination and enterprise of this country.

Our Future Depends on How We Measure Up to Present Opportunities.

But this vision of Empire in the business world carries with it great obligations, and business conduct, if it is to become a reality. Our orders for munitions, directly the result of the war, and increased demand for our food products, will cease with the war. It is a peace demand for which we must prepare. The extraordinary necessities and conditions that are enabling us to sell and introduce our goods will cease some day, and then it will depend on the reputation we have made in quality, and the ability and probity we have shown in carrying out the obligations we enter into, as to whether these new markets are to remain with us and increase. He is a traitor to his trade and country, who for the sake of extra temporary profit takes advantage of his foreign customer's war necessity to give him anything but the best his contract calls for, and thus make "made in America", instead of a standard of quality and careful workmanship, a by-word of reproach to be remembered as a war experience. We are on trial, our future foreign trade will depend on how we stand up to the test.

STEEL CONDITIONS AFTER THE STEEL SUIT.

The first effect upon the steel trade of the decision rendered June 3d by the Federal District Court, denying in toto the Government's plea that the United States Steel Corporation should be dissolved, was merely one of relief. During the nearly four years that the suit was in progress—

it was brought October 26, 1911—and indeed for some time previous, the steel trade had recognized the distinct possibility, though it never admitted any probability, that the Steel Corporation would be dissolved into a number of parts. As such a development was a possibility, there was frequent speculation as to how such a

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change would affect the trade, and the decision in the suit brought a great feeling of relief, for by common consent there is no disposition to admit any likelihood that the Supreme Court would reverse the lower court in case the promised appeal is taken. Possibly it is significant, by the way, that the appeal has not yet been taken, the Washington correspondents averring that the decision awaits the final word from President Wilson.

To the feeling of relief occasioned by the decision of a month ago there naturally succeeds a disposition to ask "What now of the future?" An important event has occurred, and views must be recast.

One thing that used to be discussed quite seriously not so long ago, may probably be dismissed as out of the question, and that is a union of the prominent "independents". Repeatedly it has been insisted in some quarters that, the law permitting, there would eventually be a consolidation of all or a preponderating majority of the following: Republic, Cambria, Pennsylvania, Bethlehem, Lackawanna, Jones & Laughlin and perhaps several others. In view of the spirit of the decision in the Steel Corporation suit it would appear that any such union would be merely an invitation to the government to interfere. The steel suit was "largely one of business facts" with the Steel Corporation unable to dominate or control, but two concerns, say a 50% and a 40% interest, would apparently be too much. Either they would not make money or their lightest acts would arouse suspicions.

Quite incidentally it may be mentioned that the independents evince no particular desire to get together. Even the Cambria-Pennsylvania union, so often rumored, seems a long ways off. As to Bethlehem, it seems quite certain in present circumstances that Mr. Schwab would not give a moment's consideration to any project looking to a union with any other producers.

How is the steel market to be made in future? The decision frowned upon the "Gary Dinners" and evidently would have taken action had they not been discontinued before the suit was brought. It does not follow that there can be no meet-

ings or dinners in future. The court held in substance that by means of the Gary dinners prices were held at much higher levels than would otherwise have obtained.

Well, what does that mean as to the future? Very little indeed. The Gary dinners occurred when conditions were very unusual. Prices had been abnormally high and demand had suddenly undergone an enormous decrease, with the country well stocked with steel. The prices that ruled in 1908 were quite out of keeping with the demand. Such an operation is inhibited for the future, but the circumstances will rarely if ever obtain again.

It is quite obvious that it was because prices were so very high in proportion to demand that it was possible for such a loosely constructed affair as the Gary dinner movement to maintain them. It was because prices would fall so very far if the price structure went to pieces that nearly everyone stood shoulder to shoulder to uphold the structure. If there had been room for only a slight drop the men involved would have acted differently. A man may join in a movement to hold prices against a decline of \$10 a ton when he would not bother with a similar movement to raise prices \$1 a ton. We do not believe all the machinery of the Gary dinner movement, if put in operation at the beginning of last November, would have sufficed to prevent the decline of about \$1 a ton that subsequently occurred in the steel market. Men would not have considered it worth while.

A movement precisely similar to the Gary dinner movement cannot be repeated, but what of it? There is no occasion. Judge Buffington's opinion cites from the Government's petition: "It is not here alleged that merely assembling and mutually exchanging information and declaration of purpose amount to an agreement or a combination in restraint of trade" and adds the comment: "With this concession we are in full accord. In these days every large business has its societies and associations, and these meet periodically to exchange information of all kinds, to compare experiences, to take note of improvements in machinery or process, to discuss problems, and generally to profit by the

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interchange of ideas and the study of observed facts. When the business is manufacturing, of course, all this has a direct bearing on the subject of prices, and these conferences may therefore consider that subject specifically. It is probably unusual, however, to find such a meeting making a declaration of intention to charge such and such prices, although a mere declaration to that effect could hardly be regarded as unlawful. Freedom of speech and freedom of individual action are justly prized in American society, and no legislation forbids men to come together and speak freely to each other about every detail of their common business. And if each individual should choose to announce at such a meeting the specific price he intends to charge for his wares, we are aware of no law that forbids him so to do. But at this point we are approaching debatable ground, for an individual is permitted to do some things that are denied to an association of individuals, and where at a meeting of many persons some action is taken whose legality is afterwards called in question, the deci-

sion may be vitally affected by ascertaining the fact whether the action was really taken by each individual acting for himself, or whether those present were in fact pursuing a common object."

Now these words are perfectly plain and in the circumstances should be accepted by manufacturers as final for their guidance. Manufacturers may meet, as they have been largely afraid to do of late. They may tell each other of their opinions that business is improving, that higher prices are obtainable, and may tell of prices they have themselves obtained. They may urge each other that, since the market is a rising one, they should limit the obligations they assume. They may do these and other things safely, so long as they stop short of a series of individual assertions, each that the individual intends to maintain a certain price. It is quite clear that much good for the market can be done on the ground that is not debatable, and we expect manufacturers to be much freer in future in getting together than they have been in the past.

THE TRADE BALANCE.

The announcement made from Washington that the favorable trade balance in the fiscal year ended June 30, 1915, exceeds one billion dollars, because there was a favorable trade balance of some \$980,000,000 in the eleven months ending May, and 13 ports which ordinarily handle 90% of the foreign trade show for June a favorable balance of \$60,000,000, is of purely statistical interest, for during the fiscal year the balance swung from \$19,000,000 unfavorable last August to a maximum favorable of \$174,000,000 in February, and the practical value of the figures is not the showing for 12 consecutive months that chance to constitute our fiscal year, but the showing of the rate at which the balance is running.

Thus, to group months, April to August inclusive of last year showed unfavorable balances averaging \$8,000,000 per month. Then the three months September, October and November showed successive favorable balances of \$16,000,000, \$57,000,000 and \$79,000,000. Then there was a jump in Decem-

ber to \$131,000,000 and in each of the five following months, through May, there was a larger favorable balance than this, the largest being \$173,604,366 in February.

Counting out the months of unfavorable balances, September to May inclusive, nine months, showed just a shade over a billion dollars favorable balance. The balance for the six months ending May was \$854,000,000, or at the rate of \$1,700,000,000 a year. It does not follow that this six-month rate will continue, neither is it fair to assume that the high rate was made simply by exporting our crops. Exports of manufactures, largely for war purposes, have increased and they will probably increase further. We should not be surprised to see the balance for the 12 consecutive months December last to November next inclusive reach the neighborhood of one and a half billions.

Full statistics of imports and exports and trade balances for a series of years and months are given on another page.

BUSINESS TRENDS.

THE STOCK MARKET.

The stock market during June remained dull and waiting, pending the German government's reply to our last communication. While favorable crop and business prospects with the continuance of encouraging reports in steel trade conditions created a good undertone, the market presented a somewhat irregular, sagging appearance. A chief depressing influence on prices was the rather heavy sales of bonds for European account, general concessions being made at the quotations for high-grade investment issues, with an unsettling effect on the entire bond market. The sale of the \$11,000,000 New York City 4½% bonds was construed as disappointing, the price obtained in the bidding being below Wall Street's previous estimates.

Total sales of stocks on the New York Stock Exchange during the month of June amounted to 11,209,235 shares, as compared with 12,642,599 shares in May and 4,000,073 shares in June, 1914. The largest single day's transactions were 953,415 shares on the 4th, the smallest 220,400 shares at the opening of the month.

Bond sales amounted to \$57,854,500, as against \$63,848,200 in May, and \$53,848,000 in June, 1914. The largest single day's transactions were \$3,103,000 on the 3rd, and the smallest \$1,378,000 on the 1st.

HEAVY JUNE BANK CLEARINGS.

Although bank clearings for June were not so heavy as those recorded in April and May, probably because of diminished activity in stock market operations, the total—\$14,014,319,414—is the heaviest ever registered by Bradstreet's for the month first named. The best previous total set up in June was that established in 1909, when transactions in stocks were exceptionally large. Moreover, the total for the second quarter of the current year, marking the period of recent economic revival—\$43,439,000,000—exceeds that of any corresponding quarter, and the showing has been outranked by but three previous quarters by the first quarter of 1913, by the last three months of that year, and by the fourth of 1912, when clearings aggregated \$47,447,000,000. For the half year ending with June

the total is \$82,368,120,239, reflecting, as it does, a slight drop, 2.8%, from the same part of 1914, 3% from 1913 and a like ratio from 1912. The aggregate for June is 1.2% above that of the corresponding month last year; it is 3.2% larger than the sum given in June, 1913; it is 3.7% in excess of the figures for June, 1912, and it surpasses the big total of June, 1909, by a small fraction of 1%.

Following are the aggregates of clearings monthly at all cities, compared with the like periods in the three preceding years, compiled by Bradstreet's Journal:

(Six figures omitted.)

	1915.	1914.	1913.	1912.
January ...	\$13,356	\$16,102	\$16,090	\$14,977
February ..	11,836	12,775	13,481	12,788
March	13,736	14,151	13,985	14,330
1st quarter	38,928	43,028	43,556	42,095
April	14,906	14,801	14,153	14,855
May	14,519	13,070	13,980	14,708
June	14,014	13,806	13,580	13,519
2nd quarter	43,439	41,677	41,713	43,082
July .....	.....	14,359	13,422	13,847
August .....	.....	9,812	12,260	13,097
September .	.....	9,894	13,293	12,956
3rd quarter	.....	34,065	38,975	39,900
October ....	.....	11,591	15,551	17,002
November .	.....	10,951	13,742	15,228
December ..	.....	12,509	14,537	15,217
4th quarter	.....	35,051	43,830	47,447
Grand total	.....	153,821	168,074	172,524

OUR FOREIGN TRADE.

Our foreign trade for May and eleven months compares as follows:

	1915.	1914.
Exports	\$273,768,093	\$161,732,619
Imports	142,284,851	164,281,515
Excess of exports	\$131,483,242	*\$2,548,896
* Excess of imports.		

Eleven months ended May 31st:

	1915.	1914.
Exports	\$2,499,592,079	\$2,207,507,104
Imports	1,516,474,600	1,736,396,207
Ex. of exports.	\$983,117,479	\$471,110,897

BUSINESS TRENDS.

LARGE NUMBER OF FAILURES DURING PAST SIX MONTHS.

Failure statistics for the whole of the United States for the first half of 1915 as reported by Bradstreet's show that there were 10,719 commercial suspensions, a total never before exceeded for the period concerned. This very large total reflects the strain upon American business concerns resulting from unsettled conditions prevailing throughout the world.

While the number of failures for the six months ended June 30th was large, the aggregate liabilities of the 10,719 concerns involved, \$177,106,140, were only 1% greater than the total reported in the first half of 1914, when the suspensions amounted to 7,759. The figures for the first six months of this year also show that the percentage of assets to liabilities amounted to 60.5%, which is larger than in any year in the past twenty-two.

In the first half of 1908, when American business concerns were struggling to overcome the effects of the panic, suspensions were only 7,562; a total smaller than in either 1915 or 1914; but the liabilities exceeded both of those years being \$178,782,769, a total larger by 1% than that reported this year, and the proportion of assets to liabilities was only 57.7%.

January proved to be the most disastrous month thus far this year, the suspensions in that month amounting to 2,378. Since then there has been an almost steady decline until May, when failures amounted to 1,436, the smallest of any of the six months. The June failure record was 1,490. The exceedingly large increase in failures this year was due almost entirely to the cotton-growing States of the South. In that section the increase in suspensions was 80%. The Western States report an increase of 41%, and the New England States 26%. In New York city alone, the increase in failures was only 3%.

PIG IRON PRODUCTION CONTINUES TO INCREASE.

The pig iron statistics for June show plainly the expansion in steel production. In the 30 days of June the output was 2,

380,827 gross tons, or 79,361 tons a day, a gain of 6,346 tons a day over May. Steel works furnaces contributed nearly 4,500 tons of this increase. There was a net gain of 12 in active blast furnaces last month, and the capacity of the 218 furnaces in blast July 1st was 80,411 tons a day, against 75,643 tons a day for 206 furnaces one month previous. The country's highest rate of pig iron output was 92,669 tons a day in February, 1913.

EXCEPTIONALLY LARGE NUMBER OF NEW INCORPORATIONS.

Not in over two years have the monthly incorporations been so large as in June, which is regarded as indicative of the improvement in general business. Papers filed in the Eastern States for companies with a capital of \$1,000,000 or over represented a total of \$181,247,100. The nearest approach to this favorable showing was in May, 1914, when the total was \$172,200,000. In June a year ago it was \$70,950,000. The grand total of companies incorporated with a capital of \$100,000 or more, in all States, including those of the East, was \$230,859,000. In May the figures were \$124,041,000. In July, 1914, they were \$125,392,000.

Following are the comparative figures specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. ..	\$51,150,000	\$120,050,000	\$332,450,000
Feb. ..	53,950,000	51,575,000	191,500,000
Mar. ..	70,650,000	57,700,000	166,030,000
April ..	32,200,000	136,185,000	198,718,000
May ..	78,950,000	62,500,000	172,200,000
June ..	181,247,100	70,950,000	70,350,000
Total ..	\$467,547,100	\$498,260,000	\$1,110,148,000
July ..	.....	68,700,000	83,650,000
Aug. ..	.....	50,600,000	63,500,000
Sept. ..	.....	54,800,000	42,750,000
Oct. ..	.....	35,187,500	70,856,000
Nov. ..	.....	81,650,000	77,800,000
Dec. ..	.....	105,450,000	55,250,000
Total ..	.....	\$894,947,500	\$1,534,254,000

PROSPERITY FOR STEEL INDUSTRY ASSURED.

**Capacity Operations Already Being Approached—Orders Exceed Shipments—
Part Played by War Tonnage—United States Only Iron Producer at
Peace—Our Steel Industry is Undersized.**

In our general review last October we predicted a boom in trade at the close of the war, because new construction would be necessary and political economists agree upon the fundamental that prosperity and activity in business can be gauged by construction. We dismissed the argument sometimes heard, that there will be no capital, holding that there will be confidence, and confidence will be sufficient.

In our December number we noted indications that the steel industry had "rounded the turn", the only question being whether recovery would be slow or rapid. In the January issue we found it was absolutely demonstrated that steel had rounded the turn. In the March issue we said: "It does seem that everything justifies a return of confidence and better business, and we still hold to our opinion so repeatedly expressed in the past that this country is on the threshold of great prosperity and business activity." In the June number we expressed the opinion that the steel trade "is facing a surprising change for the better which within a year will tax the productive power of the country."

The Upward March in Steel.

The worst month in "sentiment" in the steel trade was October last. No good thing could be seen by members of the trade. Orders had fallen off rapidly and all buyers were reducing their stocks to proportions formerly thought impossible. There was no confidence and no credit. Early in November a reaction in sentiment began. We think the time was ripe for the change, for sentiment, once started on a course, runs it until it can go no farther. Undoubtedly the reaction was greatly stimulated by the inauguration of the new banking system and by the results of the November elections.

In actual business booked by the steel trade the worst month was November. The Steel Corporation reports of "unfilled obligations" showed a low point in net obligations assumed in September, with slight successive increases but our understanding is that in September and October there were considerable tonnages written

off as obligations, whereby the net for September was the lowest, but the actual new business received was lowest in November. In December the bookings undoubtedly increased very largely.

In steel prices the lowest level was reached in December. That was a natural course for steel. In a decline the lowest prices are brought out when buyers show a disposition to take hold, for then competition is encouraged and sellers feel that the market can be lifted by getting under it.

In steel production the low point was reached in December, and indeed late in the month, because the holidays furnished a desirable time for closings for repairs. While orders had grown larger, shipment was not desired until January.

In these four items, sentiment, orders, prices and production, there has been almost continuous improvement month by month up to the present time. From being utterly blue in October the steel trade is now measurably confident for the future. From comprising about one-third of capacity in November orders have risen until in June the receipt of actual shipping orders closely approximated the capacity, and exceeded the production, although that had been largely increased. Steel prices have advanced from December 31 to July 1 by \$2.70 per net ton, shown by our **composite finished steel**, though realized prices on shipments have not increased as much, largely because shipments were formerly merely at the minimum of the quoted market, whereas now there remains business to be filled at lower than the levels to which the current market has advanced, and partly because rails, which are not included in our composite, stand at an unchanged price. Steel production has more than doubled, having been estimated at less than 35% of capacity in December, while at present it is estimated at 80% of capacity.

Bearing of these Developments.

These things have been written into history. Do they prove anything for the future? We are certain that they do prove

the upward march is to be continued. The entire history of the steel industry bears out this conclusion. We have had major and minor movements in the steel market, and there has been a wide gap between the best minor movement and the poorest major movement. The major movements centered in 1899, 1902, 1905-6, 1909 and 1912. In the periods of dullness that intervened there have been numerous minor improvements, false starts, none of which lasted more than about three months. Never did an improvement last for even five months, let alone the seven months we have already seen, without it proving to be a major movement. Never have the steel mills reached a point of operating at 80% of capacity without soon passing to capacity production. The steel trade has never attained the present stage of activity and then fallen back.

The United States Among Iron Nations.

The United States controls more than 96% of the iron making capacity of the world that is not involved in the war. The world's pig iron capacity is about 85,000,000 gross tons. Of this the nations at peace have: United States, 35,000,000 tons; Sweden, 750,000 tons; Spain, 450,000 tons; minor countries, perhaps 200,000 tons. Iron producing countries at war are: Germany, Austria-Hungary, England, France, Russia, Belgium, Italy, Canada, India and Japan.

This 96% is one point, but there is another point, still more important. We can trade with the Allies, but not with Germany and Austria-Hungary. These countries had 26% of the iron producing capacity, but they exported about one-fourth their product, and such exports are now cut off. Furthermore, they have captured more than three-fourths of the French iron industry, and all of the Belgian iron industry, whereby they now control, altogether, 33% of the world's iron industry, when they had previously used, for their own home consumption, only about 20% of the world's capacity. Their exports have been shut off and they have acquired from the Allies additional capacity. If they need this large accretion of capacity, how much more must the Allies, shorn of a considerable part of their capacity, need to employ the resources of the United States? Even if the German alliance is surfeited with iron capacity, the Allies are distinctly short. Information is meager, but there is reason to believe that as the Germans took Belgian and French

territory the iron making capacity was left practically intact; the territory was abandoned quickly. Should the Allies eventually regain the territory, their progress will be slow, and it is almost inconceivable that the thorough-going Germans would leave the works intact, if they are now in operative condition. Undoubtedly they would be disabled before being abandoned.

The position of the United States with respect to the iron needed by the world for both war and peace purposes, is therefore one of tremendous strength. We do not believe the facts, as disclosed by the foregoing brief outline, have hitherto been appreciated at their full value.

Exports to Date.

Up to this time our exports involving iron and steel have been relatively light. They have not contributed largely to the steel trade revival. There has evidently been much loose thinking on this subject. Men have observed that the domestic buyers were not taking hold with avidity; railroad buying has been light compared with past records, new construction is far from heavy, jobbers and manufacturing consumers have shown no disposition to stock up. Apparently these facts have been summarized, and making a poor total the conclusion is improperly reached that the difference between the apparently poor domestic demand and the known rate of steel production must be made up by war business, and by such reasoning the war business appears large. That is no way to arrive at an estimate, any more than it would be proper to determine the carbon and silicon in pig iron by analyzing for iron and calling the rest carbon and silicon. There are some data at least showing the proportion of war exports. The April exports of iron and steel items reported by weight totaled 223,000 gross tons, and excluding pig iron, scrap and cast iron material the steel amounted to 192,000 gross tons. The steel industry appears now to be turning out about 1,900,000 gross tons per month of finished product, so that the April tonnage exports, representing what at the time was regarded as a large movement, represented only 10% of our present production. If the June exports were 20% greater than the April, quite a sanguine estimate, they would represent only 12% of our current output of steel.

In addition there must be considered manufactures of iron and steel exported

and not returned by weight in the statistics, including machinery, hardware, cutlery, locomotives, agricultural implements, motor cars, freight cars, locomotives, loaded and unloaded shells and other war munitions. Without mentioning burdensome details, our careful estimate is that the exports of all iron and steel manufactures in April, not returned by weight, represented 2% of our current steel production. Such exports have been increasing very rapidly, particularly as to shells, and allowing for a doubling in June we have 16% of the June steel output exported in one form or another. With 12% in April and 16% in June it can be seen readily that the steel productive activity thus far experienced has been due in but small part to war and peace exports combined.

As to the future, however, there is a different story. The exports of loaded and unloaded shells, and of steel for making shells abroad, are still increasing. Russia and France have been heavy buyers of cars, locomotives and rails, and scarcely any of these exports have yet been accomplished. While in the past quarter less than 15% of our steel has been exported, in the next quarter we expect about 25% to be exported. Then the exports will be a really important factor.

Steel Industry Undersized.

For a year and a half we have been urging that the steel industry is undersized for the growth of the country, that before the normal consumptive demand, repressed for so many years, should be fully expressed the existing steel capacity would be taxed to its utmost. We do not base our view simply upon a summary of steel making capacity, Bessemer converters and open-hearth furnaces, but upon a general survey of the whole industry. The steel making units must be fed with pig iron and scrap. The blast furnaces must be fed with coke and ore. The steel ingots when cast must be rolled and the resulting material otherwise fabricated. The various departments can never be perfectly aligned. There is always a breaking down at one point before another. At the close of 1907 the steel industry found itself oversized, for the demand of the three years preceding was recognized as abnormally large and there was new capacity recently brought

into being, and new capacity also on the way. Since the completion of that capacity the new construction has been exceptionally light. In the eight years since 1907 extremely little new construction has been entered upon. The individual projects sometimes have seemed fairly large, but only by old standards, when there was a fifteen million ton industry, not a thirty million ton industry. The movement of 1909, six years ago, was not a large one from the consumer's standpoint, yet it strained the capacity of the industry at the time. The movement of 1912, three years ago, was quite moderate from the standpoint of how steel was being consumed, yet it placed the steel industry under heavy pressure. In the early months of 1913 buyers would have accepted delivery upon considerably more steel than the mills were able to ship. As the country has grown meanwhile, a demand smaller relative to the size of the country and the new uses constantly being found for steel than the demand of 1909 or 1912 would tax the existing industry still more severely, yet already there is pre-empted a very considerable part of the capacity, for export purposes.

Conclusion.

It seems beyond doubt, therefore, that a major movement in the steel market is in progress and that in the near future, probably within three months, the productive resources of the industry will be taxed. It seems clear also that when that point is reached, it will have been reached without the full consuming power of the country having been expressed, the consuming power that has been growing year by year, although more or less latent, with the increase in population, the increase in industrial activity per capita, and the new uses to which steel is continually being adapted. Previous experiences have all shown that demand for steel grows while it sleeps and when after a period of dullness it is again expressed, it is expressed in much larger tonnages than ever before. The next time it is fully expressed it will find the capacity particularly short, because the increase in capacity in the past six years has been much smaller, in percentage, than the average of increases that occurred previously.

THE GALVANIZED SHEET PROBLEM.

In our last issue we discussed in considerable detail the various possible substitutes for galvanized sheets, referring also to such sheet metals as might be regarded as possible substitutes for sheet zinc. What will actually occur by way of substitution remains largely for the future to determine. Normally, even when jobbers' stocks of galvanized sheets are not large, as such stocks go, there is a large tonnage of galvanized sheets at various points between the galvanizing pot and the place of final employment, of actual consumption. With such sharp rises in galvanized sheet prices as occurred late in May and early in June buyers of sheets naturally became timid, and the sharp drop that subsequently occurred in spelter, from about 26.50c, East St. Louis, on June 4th to about 17.75c on June 22d, a drop in itself equal to double the lowest price of spelter last October, naturally did not encourage them to enter the market. The rise in spelter which immediately followed only served to confuse the buyer still more.

It is quite impossible for the galvanized sheet manufacturer to map out any business course. The buyer of sheets will not purchase for forward delivery, if he buys at all, while if the sheet galvanizer buys spelter for spot shipment an interval of more than a month must elapse from the purchase of the spelter to the shipment of the galvanized sheets. He must gamble to the extent of one month at least, yet even then is faced by the unpleasant fact that as a rule the fluctuations in spot spelter are greater than the fluctuations in forward spelter, and with spot spelter always above forward spelter the market is continually furnishing a suggestion to him that it is going to decline. As a rule, in any commodity, one expects to pay more for regular deliveries over a period of time than for a prompt lot. A market that exhibits the other relation is almost invariably regarded as one which one should enter with the utmost reserve.

Thus conditions are so whipsawed that the seller of galvanized sheets is in no position to name prices with confidence,

and the buyer is disposed to wait until the last moment. The final consumer has had little opportunity to make up his mind whether he will use galvanized sheets or adopt a substitute.

Many of the possible substitutes for galvanized sheets or zinc sheets have no clear future before them. The war affects all metals, and may affect individual metals differently in future. Every one of the common non-ferrous metals is subject to war influences, and how great these influences may be no one can foresee. Lead, starting in the lead coated sheets lately offered in the market, after pursuing the even tenor of its way for about ten months of the war, suddenly started an advance late in May that carried it in barely more than a fortnight through an advance of about 18%—two thirds of the advance being lost in less than a fortnight thereafter.

Relatively secure from prospects of violent fluctuations are steel sheets coated with paint or other non-metallic portions. Their value will undoubtedly be very considerable, since their characteristics are relatively well known, and the purchaser is assured, when buying, that he is getting something with which some others, at least, have been satisfied in the past.

It is quite impossible that spelter should become relatively plentiful in the near future. The demand for war purposes may possibly become somewhat less urgent, as the army obtains in some quarters that the allies are endeavoring to accumulate supplies, but the war news all indicate that the present condition on the firing lines is rather an acute shortage. Quantitative supplies are necessarily subject to much uncertainty, but one is given to understand that the allies are shooting in the neighborhood of 100,000 shells a day. We have seen a statement regarding the expenditure of shells, apparently quite authentic, which places the total amount of brass at about 100,000 lb. per shell, or 100,000 times the amount of spelter. At 200,000 shells a day, this figures out 6,000 net tons of brass per month, and this only the amount of brass of one description.

THE SPELTER FAMINE.

Asbestos Protected Metal.

✕ In our June issue under the heading "The spelter famine" the cost of a number of metallic products was discussed, relative to the cost of sheet zinc or galvanized sheets, based on the present high costs of the latter. In that summary no mention was made of asbestos protected metal. No comparison of the first cost of this material with the first cost of galvanized steel is adequate, for the reason that the asbestos protected steel is altogether distinct from painted sheets, galvanized sheets, terne plate, etc., in that these products all require painting at the start and also subsequent painting, while the asbestos coated steel requires no painting at all. When painted sheets are considered as a substitute for galvanized sheets, the first cost is found to be vastly less, but there is a partial offset in that the plain steel requires more frequent painting than the galvanized, while the asbestos protected metal has a higher first cost even than galvanized sheets at the present market level, but requires no painting at all. Its advocates claim that in the long run it is much cheaper in consequence of this fact, and point out that painting is usually quite an expensive operation, particularly when the great liability to injury of workmen is considered.

The asbestos protected metal is made from perfectly clean steel sheets, coated with a special asphaltic compound, upon which in turn a layer of pure asbestos felt is applied, this being forced upon the asphalt so that the asbestos and asphalt are thoroughly intermingled and bonded. The

asbestos is in turn covered by a waterproofing. The asphalt and asbestos are drawn over the edge of the steel sheet. Mineral pigments are introduced into the asbestos so as to meet decorative requirements while eliminating the necessity of painting. The material is corrosion proof and thus can be used in certain cases where some of the metals are inadmissible.

A comparison of first cost of asbestos protected metal and galvanized sheets is naturally made by taking similar weights of the original steel sheet. Thus what is known as 26 gauge asbestos protected metal is 26 gauge black sheets, weighing 12 oz. per square foot. The same black sheet, when given the ordinary spelter coating, would be known as No. 27 gauge galvanized. Taking galvanized sheets at 5.00c basis for 28 gauge, corrugated but not painted, the 22 gauge asbestos sheets cost say 65% more per square than galvanized, the increase advancing to 85 or 90% in the case of 26 gauge. To the cost of the galvanized sheets, however, there is to be added the cost of the first painting and of subsequent paintings. No figures as to the cost of painting or the durability of galvanized sheets can be used that would be worth anything, for the durability depends simply on the painting. When not subject to special corrosive influences, even a plain black sheet would probably last indefinitely, if kept properly painted, and the fact that galvanized sheets have been used in the past constitutes a practical admission that proper painting is impossible or is too expensive. The next step is naturally to a material that requires no further attention.

WHAT DOES EUROPE HOLD IN AMERICAN RAILROAD SECURITIES?

Europe holds at least two and a half billion dollars' worth of American railroad securities, par value. Of this large total \$633,802,162 is represented by common stock, \$161,280,900 by first preferred and \$99,900 second preferred stock. The remainder, \$1,781,318,380, comprises notes, receivers' certificates and various classes of bonds. Following are the detailed figures:

Security—	Total.
First preferred stock	\$161,280,900.00
Second preferred stock	99,900.00
Common stock	633,802,162.00
Notes	61,375,640.16
Receivers' certificates	998,000.00
Collateral trust bonds	227,610,415.26
Equipment bonds	17,364,289.00
Car trusts	808,000.00
Debenture bonds	204,005,310.00
Mortgage bonds	1,269,086,726.00

Total \$2,576,401,342.42

These figures represent the results of the investigation by L. F. Loree, president of the Delaware & Hudson Railroad, into a subject that has hertofore not been as successfully handled. The information was determined from data collected from October, 1914, to April, 1915. During and since that period there have been large sales of these securities for foreign account in the American markets. To that extent the amount would be overstated.

The Information Approximately Complete.

The information is based on official and approximately complete returns. Requests

were sent to 145 railroad corporations, being all the railroads in the United States above 100 miles in length. Replies were received from 137 companies. Of these 100 companies furnished statements of securities held abroad, while 37 replied that none of their securities were so owned. Eight companies have not yet replied. Seven are of minor and one of medium importance, the combined mileage being 3,725 miles. They cannot materially affect the result.

Maturities of Bonds and Notes Held Abroad.

An exceptionally interesting feature of Mr. Loree's statement is its tabulation of bond and note maturities. Shares of course do not require payment; they may only be returned to this country by sale as would be the case with any merchandise. But bonds and notes, etc., when they mature must be paid. In all obligations aggregating \$112,988,400 mature before December 31, 1919. Between January 1, 1920 and December 31, 1924, \$141,938,274 mature; between January 1, 1925, and December 31, 1929, \$293,920,389; between January 1, 1930, and December 31, 1939, \$272,053,376; and on and after January 1, 1940, \$960,317,941.

It will be observed that the "debts" that require prompt payment are comparatively small. Otherwise the securities must be sold in the open market, subject to payment at maturity if foreign holders desire to realize upon them. The various maturities of bonds, notes, etc., are given in detail of Mr. Loree as follows:

On or before Dec.31, 1919.	Jan. 1, '20 to Dec. 31, '24.	Jan. 1, '25 to Dec. 31, '29.
\$54,921,000	\$6,438,640	\$16,000
998,000		
5,606,000	71,060,567	10,082,000
1,332,600	1,129,700	14,002,580
792,000	16,000	
33,310,000	928,000	25,041,500
16,129,400	62,365,367	182,978,300
\$112,988,400	\$141,938,274	\$293,920,389
Jan. 1, 1930 to Dec. 31, 1939.	On and after Jan. 1, 1940.	
\$8,408,000	\$132,453,848	
82,693,160	1,232,650	
180,952,216	826,631,443	
\$272,053,376	\$960,317,941	

The stocks in the hands of the foreign holders were identified by entries in the transfer books of the issuing companies. To the extent that they may be carried in the names of domestic bankers, brokers, or institutions, for foreign holders, the amount would be understated. Mr. Loree's inquiries indicate that such holdings will not exceed one hundred and fifty million dollars par value.

The bonds were in the main identified by the "slips" filed by the payee under the requirements of the Federal income tax law. Where interest is in default there would be no income tax certificates in respect of coupons not paid, and to that extent the amount would be understated.

Securities Held in France Not Likely to be Sold.

There are held in France several hundred million dollars' worth of American railroad securities that are not repayable except in francs and that cannot in any likely contingency come upon this market, unless as a result of action by the French Government. Where such bonds are in default it may be that there will be issued in place thereof, when reorganization is carried through, bonds payable in dollars. The amount of such bonds in default is not great.

There are held in Great Britain many of securities by life and fire insurance

companies that are likely to be held against calamities. There are also large amounts held by trustees and people of large means in that and other countries likely to be retained as insuring an income against any possibility of disaster.

Mr. Loree believes that this information is of such general importance as well as of such particular importance to the railroads as to warrant a continuance of this investigation, especially in view of the large amount of these securities that have since the beginning of the European war been returned to this market. Blanks will therefore be sent later in the year to 100 companies as above with the request that information be reported for the six months, July 1st to December 31st, as to bonds and other evidences of indebtedness, and for July, as to stocks.

Various Estimates of Securities Held Abroad.

Various estimates as to the volume of American securities held abroad have been made within the last few years. Sir George Paish, editor of the "Statist," has placed the total at \$6,000,000,000. The latter amount however, presumably includes various municipal issues, stocks and bonds of industrial corporations and of various small corporations that are not listed on the exchanges. It may also include land holdings by English companies in this country.

TOPICAL TALKS ON IRON.

XXVII. Physical Properties of Steel.

Steel for various purposes is required to have various physical characteristics. In Talk No. XXII it was pointed out that the adoption of special steels, now in progress, is relatively sudden, that is, as to large tonnages. There have always been special steels, of limited application. Among the physical characteristics required in special steels are strength, including tensile, compressive, shearing, torsional and bending; plasticity, malleability, ductility, hardness, etc.

The tensile strength of steel is not an important factor in itself, as it lies beyond the elastic limit. When a piece of steel is put in tension it increases in length and up to a certain point the increase is in uniform proportion to the stress, but at the certain

point the steel acquires a permanent set, and does not return altogether to its original form when the stress is removed. That point is called the elastic limit. The writer recalls reading, many years ago, that the French engineers had discovered a "limit of proportionality" beyond which the elongation was in greater ratio to the stress than within the limit, and that this "limit of proportionality" lay inside the elastic limit. No such thing is now recognized. The steel is supposed to increase uniformly in length as the stress is increased, until the elastic limit is reached, and at that point a permanent set is acquired. The steel, however, does not break immediately after the elastic limit is reached, but will bear still greater stresses before it yields. Fin-

ally it does yield, and the point at which it yields is regarded as the ultimate strength of the piece of steel. That, however, does not represent the maximum fiber stress for the reason that the cross section decreases at the place where breakage occurs and therefore the stress per unit area is increased there.

Thus, in the matter of strength, we have two items, the elastic limit and the ultimate strength. There are two more elements disclosed by pulling a steel bar to the rupture point, the elongation, stated in percentage of the length, and the percentage of reduction of area of cross section at the point of rupture. A high percentage of elongation of course indicates both ductility and uniformity. The reduction in area is not illuminating unless studied with referred to the other data disclosed by the pulling test.

Up to the elastic limit, as noted, the temporary elongation is proportionate to the tension applied. The relation between the elongation and the tension is therefore capable of measurement, and it is expressed in terms of the number of pounds per square inch of cross section that would be required to double the length of the steel, assuming that this could be done. The elastic limit, of course is reached when the steel has been elongated by about one one-thousandth of its length. This factor, called "Young's modulus" or the "modulus of elasticity", generally runs from 28,000,000 to 30,000,000 pounds in steel, and is approximately the same for compression as for tension. Taking 29,000,000 pounds, if a steel bar of one square inch cross section were compressed by 29,000 pounds, or put in tension by 29,000 pounds, the length would be decreased or increased by one-tenth of one per square inch.

When steel is strained to a point under its elastic limit it is temporarily weakened, but will recover wholly or almost wholly if a period of time is allowed to elapse before it is made to undergo another strain. If the time is not allowed the steel becomes fatigued.

Malleability and ductility are practically synonymous terms but the former term is more likely to be used when one has hammering in mind and the latter in case the operation is one of stamping and drawing.

Astonishing progress has been made in the

past few years in the production of deep drawing or "cold-chamber" steels, leading to such a great extent as to be accomplished by an operation which produces deformation that was formerly accomplished by two causes, improvement in the quality of the steel and improvement in the design of the dies.

Steel has various other physical properties, important in one or more of its uses. The most important of these, as yet mentioned is that in hardness, depending mainly recent years chiefly upon the carbon content, which when over a certain point permits the steel to be tempered, thus increasing the hardness. In recent years various alloys of steel with other metals have been developed to produce hardness. The most interesting of these, perhaps, are the special steels which are self-hardening, so that they do not require tempering, and do not lose their hardness when heated to a perceptible redness. There is a speculation in some quarters that such steels were invented by Messrs. Taylor and White, but what these gentlemen really did was to devise a complicated heat treatment whereby the quality of such self hardening steels is greatly improved. It was Mushet who discovered the self hardening alloy, a steel containing about 1.50% carbon and 3% tungsten. Later discoveries show that a still better steel is produced by increasing the proportion of tungsten and adding chromium.

UNITED STATES WEALTHIEST OF NATIONS.

According to a publication entitled "Estimated Valuation of National Wealth" issued by the Census Bureau, the United States is the richest nation in the world.

For 1912, the latest year considered in the report, our wealth is placed at \$187,734,071,090. That meant an increase since 1904 of \$80,634,878,680 and since 1900 of \$69,221,764,315. The average annual addition to our wealth since 1904 was therefore \$1,680,000,000 and since 1900 \$8,200,000,000. Apparently the national wealth more than doubles in a decade.

The following figures taken from a census table shows how the country's wealth is distributed:

Real property and improve-	
ments taxed	\$88,362,813,500

Real property and improvements exempt	12,313,519,502	Electric light and power stations	2,098,613,122
Live stock	6,238,388,985	Agricultural products	5,240,019,651
Farm implements and machinery	1,368,224,548	Manufactured products	14,693,861,489
Manufacturing machinery, tools, &c.	6,091,451,274	Imported merchandise	826,632,467
Gold and silver coin and bullion	2,616,642,734	Mining products	815,552,233
Railroads and equipment....	16,148,532,502	Clothing and personal adornments	4,295,008,593
Street railways, &c.....	4,596,563,292	Furniture, carriages and kindred property	8,463,216,222
Telegraph systems	223,252,516	Among individual states, New York leads with \$25,011,105,223, being almost \$10,000,000,000 ahead of Pennsylvania and Illinois, with their almost \$15,500,000,000 of wealth. These are the only states whose resources run into eleven figures. The wealth of the great producing region commonly called the West aggregates \$77,-463,000,000.	
Telephone systems	1,081,433,227		
Cars not owned by railroads	123,362,701		
Shipping and canals	1,491,117,193		
Irrigation enterprises	360,865,270		
Privately owned water works	290,000,000		
Privately owned central elec-			

RAILROAD EARNINGS.

Railroad earnings per mile of road, of roads having annual operating revenues above \$1,000,000, this being about 229,000 miles or about 90% of the total steam railway mileage; compiled by the Bureau of Railway Economics from duplicates of reports furnished the Interstate Commerce Commission.

	1913-14 —			1914-15 —		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	\$1,183	\$837	\$346	\$1,124	\$785	\$339
August	1,244	856	388	1,175	789	386
September	1,257	854	403	1,182	781	401
October	1,314	891	423	1,169	786	383
November	1,180	884	337	1,023	732	292
December	1,116	821	296	990	728	262
January	1,021	795	226	936	716	220
February	914	746	168	897	678	219
March	1,091	801	290	1,012	720	292
April	1,038	782	256	1,010	722	288

IRON AND STEEL,

THE SITUATION.

Returning confidence in the steel trade dates from the beginning of last November, increased buying from the beginning of December and advancing prices from the beginning of January. Thus there has been more than six months of improvement and by all precedents this assures that the improvement is to be continued. The steel market has never improved for six months and reached of operating at 80% of capacity, and then move backward. Whenever as much ground as this is gained the remaining ground is covered eventually, to full operation, mills falling behind in deliveries, buyers taking hold for forward deliveries and prices advancing by fair amounts.

The steel mills are operating, as indicated, at about 80% of capacity, against about 70% in April and not over about 35% last December. Finished steel prices average somewhat over \$2.50 per net ton higher than at the low point late in December. Some steel products have had practically no advance. The average advance is very moderate, but is in keeping with traditions in the trade, that steel prices do not advance by any considerable margin until an operation at practically capacity is at least closely approached. A change from 75% to 95% will effect vastly more advance in prices than a change from 35% to 75%.

Pig iron prices are practically as low as in January and the same can be said of coke, while scrap has experienced scarcely any advance, and at Pittsburgh melting steel is lower than in January. These three commodities occupy an anomalous position. Pig iron usually lags behind steel in a general improvement, but six months makes it an unusually distant second. A suggestion, interesting but hardly adequate, is that the part of the steel activity that is due to war material does not involve an increase in the use of iron castings, such as should occur when the domestic demand for steel increases. Coke lags because merchant pig iron lags. Connellsville coke production has increased 75% in six months, from 200,000 tons a week to 350,000 tons, but the increase has been chiefly on the part of the "furnace ovens", those owned by consumers.

The June Movement.

Practically all the steel companies appear to have had larger orders than shipments in June, despite the fact that shipments were somewhat increased. During the second half of June the Steel Corporation's shipping orders are stated to have exceeded shipments by about 10,000 tons a day.

The buying has been fairly general, but two prominent lines have been steel for railroad cars and steel for war material, particularly shells. The automobile industry has bought very freely of sheets, for second half delivery, and has already specified considerable tonnages. Prospects of automobile consumption of steel indicate a considerably larger tonnage for the next twelve-month than for the past twelve-month. The agricultural implement steel bar tonnage has been put under cover, chiefly at 1.20c, Pittsburgh, for six months, but no important tonnage has been specified. Demand for standard steel pipe continued practically normal, with an improvement in boiler tubes, but no improvement in oil country goods, and there is no prospect of improvement in this direction for months. Structural business looked up somewhat, and while the June tonnage was not heavy, according to precedents, it doubtless exceeded that of any previous month for about a year.

Both the sheet bookings and the sheet shipments of the American Sheet & Tin Plate Company in June were the largest for any month since February, 1913.

Export Demand.

The April exports of tonnage items in iron and steel totaled 223,240 gross tons, an increase of 48,927 tons over March and an increase of 98,524 tons over the monthly average August to February inclusive. There is reason to believe that June exports have been still larger, say 275,000 tons. The value of all iron and steel exports in April including machinery, etc., in addition to the tonnage items, was \$25,502,649, making practically the same favorable comparison as does the tonnage.

The Russian government's orders for cars have now been entirely closed, and include 17,000 taken from the United States and 5,000 from Canada. Russia has also ordered 400 locomotives in the United States and 50 in Canada. The French government has

IRON AND STEEL.

and steel mills in the United States and 1,000 in Canada. The Russian purchases were mentioned as amounting to the extent of 15,000 cars, while Russia's rail purchases were then mentioned also as totaling at least 50,000 tons.

Taking the steel industry as operating at 80% of capacity, the current shipments of finished steel are running at about 1,000,000 gross tons per month. The April exports of tonnage lines in steel (deducting pig iron, scrap, castings, etc., from the 223,000 tons already mentioned) represented about 10% of the present rate of steel production, and manufactures not reported by weight probably represented 2% more, making 12%. The June exports of steel and manufactures involving steel probably represented somewhat more than 15% of the output. With the Russian and French government purchases of rails and rolling stock, together with increases in other directions, exports promise to take up between 20 and 25% of

as much steel as is now being produced, but it is to be expected that the production will increase.

Including the export orders, about 24,000 freight cars were actually entered on books in June, against 20,000 in May and about 18,000 in the nine months August to April inclusive.

Steel Prices.

About July 1st an advance of \$1 a ton occurred in bars, plates and shapes. The large mills had been quoting 1.20c for June and 1.25c for third quarter, and practically all of them withdrew the 1.20c price in the closing days of June. The small plate mills that were quoting 1.15c or less at the beginning of June firmed up so that they were generally quoting about 1.20c at the close of the month, with prospects that they would fill up sufficiently to advance to the level the large mills are endeavoring to obtain.

Wire products softened a trifle during

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	Bessemer, Basic, No. 2 fdy,				Basic No. 2 X fdy, Cleve-				—No. 2 fdy—		Ferro- Fur-	
	—Valley—				Phila.	Phila.	Buffalo.	land.	Chi-	Birm-	mangan-	nace
					Phila.	Phila.	Buffalo.	land.	cago.	ingham.	ese.*	coket
1914—												
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88	
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90	
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92	
April ..	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90	
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83	
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80	
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75	
Aug. ..	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00†	1.74	
Sept. ..	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70	
Oct. ..	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65	
Nov. ..	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60	
Dec. ..	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60	
Year ..	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80	1.72	
1915—												
Jan. ..	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55	
Feb. ..	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55	
Mar. ..	13.60	12.50	12.75	13.50	14.35	12.74	13.25	13.60	9.42	78.00	1.53	
April ..	13.60	12.50	12.75	13.40	14.05	12.69	13.25	13.50	9.25	78.00	1.55	
May ..	13.60	12.50	12.75	13.25	14.25	13.17	13.25	13.50	9.47	91.00	1.50	
June ..	13.75	12.57	12.70	13.42	14.25	13.08	13.25	13.50	9.50	100.00	1.50	

* Contract price, f.o.b. Baltimore; † Prompt, f.o.b. Connellsville ovens.

‡ S; not shipment; no contract market.

IRON AND STEEL.

June, but perhaps not as much as they usually do in the readjusting period between the spring and fall movements to jobbers, by reason of the continued heavy export demand. The \$1.50 price on nails that obtained in January will probably be reached again, as a basis for covering the large jobbers for the fall movement.

Tubular goods showed no change except that on the 15th steel boiler tubes were advanced one point or about \$2 a ton.

The galvanized sheet situation is referred to in an editorial article in this issue. The market at the beginning of June is about 5.00c for No. 28 gauge and about 5.50c for No. 30 gauge, while on heavy gauges a basis as low as 4.50c is sometimes done, using the old differentials, which are based on much cheaper spelter than is now obtainable.

Black sheets have suffered from the extremely light movement in galvanized, the competition in black being correspondingly increased, and as low as 1.70c on No. 28 gauge black is now done by some mills, the

market for months having been on a basis

1.80c. American blue sheets are bringing prices that range on 2.00 to 2.05 for common sheets, but the regular differentials do not really obtain any more, as the cost of meeting the more and more rigid specifications and inspection is far in excess of the difference in price, and mills either quote American blue sheets at a flat price, or at an advanced basis, with the old differentials. Blue imported are unchanged at 1.90c to 1.95c, depending largely upon territory and delivery.

Pig Iron.

The pig-iron market has shown a remarkable ability to stiffen, when one considers the continued improvement in steel. Southern iron was not quotably changed in June, though possibly it grew a shade stiffer. Chicago continued to show occasional irregularities, and Buffalo dropped 50 cents. The Pittsburgh market stiffened slightly as to Bessemer and basic, but foundry iron experienced a fresh drop, to \$12.50, valley, 25 cents below the level obtaining for so

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

Wire Cut Sheets Tin Composite
Shapes, Plates, Bars, Pipe, Wire, Nails. Black, Galv. plate. Finished
steel.

1914—

January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.32	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September .	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November .	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.35	1.5182

1915—

January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	3.10	1.4554
February ..	1.10	1.10	1.10	80¾	1.38	1.58	1.55	1.80	3.09	3.10	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.80	3.40	3.15	1.5098
April	1.20	1.20	1.20	80	1.37	1.57	1.55	1.80	3.40	3.20	1.5357
May	1.20	1.17	1.20	79	1.36	1.55	1.55	1.80	3.60	3.11	1.5381
June	1.20	1.15	1.20	79	1.35	1.55	1.55	1.76	4.80	3.10	1.5312

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ing, and putting valley foundry iron at the lowest level, by at least 25 cents, since 1904. Girard furnace, in the Mahoning valley, went out of blast at the close of June, after a run of three or four months, finding prices unsatisfactory and the future not sufficiently promising.

Hopes are still entertained that eventually the pig iron market will experience a general advance and as time passes without the advance starting the suggestion is made that the advance will be all the more sudden when it does come. The furnaces in operation are low cost furnaces, but even they are making no money, charging the ore at market prices, but as nearly all have their own ore they may be making a slight margin of profit on the combined operation. The idle furnaces as a rule have much high-

er costs and it seems certain that if demand increases sufficiently to bring in any considerable number of the idle furnaces prices decidedly higher than those now ruling will have to be offered.

Prospects.

The prospects of the iron and steel industry as a whole are extremely bright. The improvement has been so steady and has now extended so far that there is scarcely any chance of a backset, and it is generally expected that within two or three months the steel mills will be operating practically at capacity, whereupon deliveries would according to custom fall behind, buyers would undertake to accumulate stocks to make up for irregular mill deliveries and prices would advance at a considerably greater rate than has been observed in the past six months.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909:

Quarter.	1915.	1914.	1913.
1st	\$12,457,809	\$17,994,382	\$34,426,802
2nd	20,457,596	41,219,813	
3rd	22,276,002	38,450,400	
4th	10,935,635	23,084,330	
Year	71,663,615	127,181,345	

	1912.	1911.	1910
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	30,063,512	29,522,725	37,365,187
4th	35,181,922	23,155,018	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, our own estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
	%	%	%	Tons.
November .	70	59	-11	-117,420
December ..	50	40	-10	-114,239
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	+ 5	+ 54,742
September ..	62	24	-38	-425,664
October ...	55	23	-27	-326,570
November ..	45	32	-13	-136,505
December ..	38	82	+44	+512,051
January 1915	44	81	+37	+411,928
February ...	57	66	+ 9	+ 96,800
March	67	60	- 7	- 89,622
April	71	63	- 8	- 93,505
May	76	85	+ 9	+102,354

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed:

1914—

Feb. 3	Pipe	80% to 79½%
" 2	Wire nails	1.55 to 1.60
" 4	Shapes	1.20 to 1.25
Mar. 9	Shapes	1.25 to 1.20
" 20	Plates	1.20 to 1.15
April 1	Bars	1.20 to 1.15
" 8	Sheets	1.95 to 1.90
" 17	Shapes	1.20 to 1.15
" 20	Pipe	79½% to 80%
" 27	Sheets	1.90 to 1.85
" 29	Tin plates	3.40 to 3.30
May 19	Bars	1.15 to 1.12½
" 22	Wire nails	1.60 to 1.55
" 26	Shapes	1.15 to 1.12½
" 29	Plates	1.12½ to 1.10
" 29	Wire nails	1.55 to 1.50
June 9	Sheets	1.85 to 1.80
" 19	Bars	1.12½ to 1.10
" 19	Shapes	1.12½ to 1.10
July 20	Wire nails	1.50 to 1.55
" 21	Bars	1.10 to 1.15
" 21	Shapes	1.10 to 1.15
" 23	Plates	1.10 to 1.15
" 30	Tin plate	3.30 to 3.35
Aug. 5	Tin plate	3.25 to 3.40
" 6	Sheets	1.80 to 1.85
" 11	Sheets	1.80 to 1.85
" 11	Bars	1.15 to 1.20
" 11	Shapes	1.15 to 1.20
" 14	Tin plate	3.40 to 3.60
" 21	Wire nails	1.55 to 1.60
" 31	Sheets	1.90 to 2.00
Sept 16	Tin plate	3.60 to 3.30
" 26	Sheets	2.00 to 1.95
" 29	Bars	1.20 to 1.15
" 29	plates	1.20 to 1.15
" 30	Tin plate	3.30 to 3.25
Oct. 5	Sheets	1.95 to 2.00
" 7	Shapes	1.20 to 1.15
" 22	Sheets	2.00 to 1.90
" 27	Plates	1.15 to 1.10
Nov. 2	Pipe (extra 2½% removed)	80% to 81%
" 5	Bars	1.15 to 1.10
" 5	Shapes	1.15 to 1.10
" 18	Sheets	1.90 to 1.85

Nov. 24	Plates	1.10 to 1.05
" 24	Wire nails	1.60 to 1.55
Dec. 1	Bars	1.10 to 1.05
" 1	Shapes	1.10 to 1.05
" 3	Tin plate	3.25 to 3.20
" 4	Wire nails	1.55 to 1.50
" 28	Tin plate	3.20 to 3.10
" 30	Sheets	1.85 to 1.80

1915—

Jan. 1	Bars	1.05 to 1.10
" 1	Plates	1.05 to 1.10
" 1	Shapes	1.05 to 1.10
" 11	Wire nails	1.50 to 1.55
Feb. 11	Wire nails	1.55 to 1.60
" 11	Pipe	81% to 80%
" 15	Galv. sheets	3.00 to 3.25
" 25	Galv. sheets	3.25 to 3.40
Mar. 1	Bars	1.10 to 1.15
" 1	Plates	1.10 to 1.15
" 1	Shapes	1.10 to 1.15
" 1	Wire galvanizing differential	40c to 50c
Mar. 15	Shafting (New list, f.o.b. Pittsburgh instead delivered)	68% to 70%
" 17	Wire galvanizing differential	50c to 60c
April 1	Boiler tubes	75%
" 1	Bars	1.15 to 1.20
" 1	Plates	1.15 to 1.20
" 1	Shapes	1.15 to 1.20
" 14	Wire nails	1.60 to 1.55
May 1	Steel pipe	80% to 79%
" 1	Boiler tubes	75% to 74%
" 1	Tin plate	3.20 to 3.10
" 12	Plates	1.20 to 1.15
" 17	Galvanized sheets	3.40 to 3.60
" 24	Galvanized sheets	3.60 to 3.55
June 1	Galvanized pipe	62% to 63½
" 1	Galvanized sheets	3.75 to 4.25
" 1	Wire galvanizing differential	60c to 80c
" 8	Sheets	1.80 to 1.75
" 9	Galv. sheets	4.25 to 4.00
July 1	Bars	1.20 to 1.25
" 1	Plates	1.15 to 1.20
" 1	Shapes	1.20 to 1.25

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. June 30.
	High.	Low.	High.	Low.	High.	Low.	
Bessemer, valley	17.25	14.25	14.25	13.75	13.75	13.60	13.75
Basic, valley	16.50	12.50	13.25	12.50	12.65	12.50	12.65
No. 2 foundry, valley	17.50	13.00	13.25	12.75	12.75	12.50	12.50
No. 2X fdy. Philadelphia..	18.50	14.50	15.00	14.20	14.50	14.00	14.25
No. 2 foundry, Cleveland ..	17.75	13.50	14.25	13.25	13.25	13.25	13.25
No. 2X foundry, Buffalo...	18.00	13.00	13.75	12.25	13.25	11.75	12.75
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	13.50	13.00	13.50
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	9.75	9.25	9.50

Scrap Iron and Steel.

Melting steel Pittsburgh ..	15.00	10.75	12.00	9.75	12.50	11.00	11.75
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	9.75	8.75	9.75
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	10.75	10.75	10.75
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	11.75	11.00	11.75
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	11.25	9.50	11.25

Iron and Steel Products.

Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.20	1.20	1.20
Iron bars, Philadelphia....	1.67½	1.22½	1.27½	1.12½	1.22½	1.12½	1.22½
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.25	1.10	1.25
Tank plates, Pittsburgh ...	1.50	1.20	1.20	1.05	1.20	1.10	1.20
Structural shapes, Pitts. .	1.50	1.20	1.25	1.05	1.25	1.10	1.25
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12½	1.15	1.12½	1.15
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	1.80	1.75	1.75
Galv. sheets, Pittsburgh...	3.50	2.80	3.00	2.75	5.00	2.65	5.00
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.20	3.10	3.10
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.55	1.55	1.55
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.60	1.50	1.55
Steel pipe, Pittsburgh	79%	80%	79½%	81%	79%	81%	79%

Connellsville Coke at ovens.

Prompt furnace	4.25	1.75	2.00	1.60	1.60	1.50	1.60
Prompt foundry	4.50	2.40	2.50	2.00	2.20	2.00	2.10

Metals—New York.

Straits tin	51.00	36.75	65.00	28.50	57.00	32.80	39.75
Lake copper	17.75	14.50	15.50	11.30	20.62½	13.00	19.87½
Electrolytic copper	17.65	14.12½	14.87½	11.10	20.50	12.80	19.62½
Casting copper	17.45	13.87½	14.65	11.00	19.62½	12.70	18.62½
Sheet copper	22.00	19.75	20.25	16.50	25.00	18.75	25.00
Lead (Trust price)	4.75	4.00	4.15	3.50	7.00	3.70	5.75
Spelter	7.35	5.10	6.20	4.75	27.50	5.70	22.25
Cooksons antimony	9.87½	7.25	22.00	7.00	40.00	16.00	.....
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	33.00	18.75	32.00
Silver	63¾	56½	59¼	47½	51½	48	48.00

St. Louis.

Lead	4.72½	3.85	4.10	3.35	7.50	4.10	5.60
Spelter	7.17½	4.95	6.00	4.60	27.00	5.55	21.75
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	33.00	9.00	27.00

London.

	£	£	£	£	£	£	£
Standard tin, prompts	232	166½	188	132	190	148½	172
Standard copper, prompts...	77½	61¾	66¾	49	86¼	57½	81¾
Lead	21½	15¾	24	17½	28½	18¼	26¼
Spelter	26¼	20¼	33	21¼	110	28½	100
Silver	293½d	25½d	27¼d	22½d	24½d	22½d	22½

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1913.		Range for 1914.		Range for 1915.		Closing.
	High.	Low.	High.	Low.	High.	Low.	June 30.
Atchison, Top. & Sante Fe...	106 $\frac{3}{4}$	90 $\frac{1}{4}$	100 $\frac{3}{8}$	89 $\frac{1}{2}$	105	92	100 $\frac{1}{2}$
Atch. Top. & Sante Fe, pfd..	102 $\frac{1}{4}$	96	101 $\frac{1}{4}$	96 $\frac{1}{2}$	101 $\frac{1}{8}$	96	98
Baltimore & Ohio	106 $\frac{3}{4}$	90 $\frac{3}{4}$	98	67	79 $\frac{3}{8}$	63 $\frac{1}{2}$	76 $\frac{1}{2}$
Canadian Pacific	266 $\frac{1}{4}$	204	220 $\frac{1}{2}$	153	171	111 $\frac{1}{2}$	143 $\frac{7}{8}$
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	40	49 $\frac{1}{8}$	37 $\frac{1}{2}$	39 $\frac{3}{8}$
Chicago, Mil. & St. Paul	116 $\frac{1}{4}$	96 $\frac{3}{4}$	107 $\frac{1}{4}$	84 $\frac{1}{4}$	98 $\frac{1}{2}$	83 $\frac{1}{2}$	90 $\frac{1}{2}$
Erie R. R.	32 $\frac{1}{2}$	20 $\frac{1}{4}$	32 $\frac{1}{2}$	20 $\frac{1}{8}$	30	19 $\frac{1}{2}$	26 $\frac{1}{2}$
Great Northern, pfd.	132 $\frac{3}{8}$	115 $\frac{1}{2}$	134 $\frac{3}{4}$	111 $\frac{1}{2}$	122 $\frac{1}{4}$	112 $\frac{3}{4}$	118
Lehigh Valley	168 $\frac{3}{8}$	141 $\frac{1}{4}$	156 $\frac{1}{4}$	118	146 $\frac{1}{2}$	129 $\frac{1}{2}$	142 $\frac{1}{4}$
Louisville & Nashville	142 $\frac{1}{4}$	126 $\frac{1}{4}$	141 $\frac{1}{8}$	125	125 $\frac{1}{2}$	110	115
Missouri, Kansas & Texas ..	29 $\frac{1}{8}$	18 $\frac{3}{8}$	24	8 $\frac{3}{8}$	15 $\frac{1}{4}$	7 $\frac{7}{8}$	8 $\frac{7}{8}$
Missouri Pacific	43 $\frac{3}{8}$	21 $\frac{1}{4}$	30	7	18 $\frac{1}{4}$	5 $\frac{7}{8}$	7
New York Central	109 $\frac{3}{4}$	90 $\frac{3}{8}$	96 $\frac{3}{8}$	77	92 $\frac{3}{4}$	81 $\frac{1}{2}$	89
N. Y., N. H. & Hartford	129 $\frac{7}{8}$	65 $\frac{3}{8}$	78	49 $\frac{3}{8}$	71 $\frac{1}{4}$	43	64 $\frac{5}{8}$
Northern Pacific	122 $\frac{3}{8}$	101 $\frac{3}{4}$	118 $\frac{1}{2}$	97	112 $\frac{1}{2}$	99 $\frac{3}{8}$	107
Pennsylvania R. R.	123 $\frac{3}{4}$	106	115 $\frac{1}{2}$	102 $\frac{1}{2}$	111 $\frac{1}{8}$	103 $\frac{3}{8}$	105 $\frac{7}{8}$
Reading	171 $\frac{1}{4}$	151 $\frac{3}{8}$	172 $\frac{1}{4}$	137	157 $\frac{1}{8}$	138 $\frac{1}{4}$	148
Rock Island	24 $\frac{7}{8}$	11 $\frac{5}{8}$	16 $\frac{3}{8}$	8 $\frac{1}{2}$	14 $\frac{1}{8}$	7 $\frac{1}{2}$	14
Southern Pacific	110	83	99 $\frac{1}{2}$	81	95	81 $\frac{1}{4}$	87 $\frac{5}{8}$
Union Pacific	162 $\frac{3}{4}$	137 $\frac{3}{4}$	164 $\frac{1}{8}$	112	134 $\frac{1}{8}$	115 $\frac{3}{4}$	127 $\frac{3}{4}$
Wabash	6	2	4 $\frac{5}{8}$	2	2 $\frac{1}{4}$	$\frac{1}{8}$	1 $\frac{1}{4}$
Industrials.							
Amalgamated Copper	80 $\frac{1}{2}$	61	78 $\frac{1}{8}$	48 $\frac{1}{4}$	79 $\frac{1}{2}$	50 $\frac{1}{2}$	75
Am. Beet Sugar	50 $\frac{1}{2}$	19 $\frac{3}{4}$	33 $\frac{1}{2}$	19	50 $\frac{3}{8}$	33 $\frac{1}{4}$	48 $\frac{7}{8}$
American Can	46 $\frac{7}{8}$	21	35 $\frac{1}{8}$	19 $\frac{1}{4}$	47 $\frac{7}{8}$	25	45 $\frac{7}{8}$
American Can Pfd.	129 $\frac{1}{2}$	80 $\frac{1}{2}$	96	80	103 $\frac{7}{8}$	89	101 $\frac{1}{4}$
Am. Car & Foundry	56 $\frac{3}{8}$	36 $\frac{1}{2}$	55 $\frac{1}{2}$	42 $\frac{1}{4}$	59 $\frac{1}{4}$	40	54 $\frac{1}{8}$
Am. Cotton Oil	57 $\frac{3}{8}$	33 $\frac{1}{2}$	46 $\frac{1}{2}$	32	54 $\frac{1}{8}$	39	45
Am. Locomotive	44 $\frac{1}{2}$	27	37 $\frac{1}{4}$	29 $\frac{1}{4}$	68	19	49 $\frac{1}{2}$
Am. Smelting & Refining	74 $\frac{3}{4}$	58 $\frac{1}{2}$	71 $\frac{7}{8}$	50 $\frac{1}{4}$	84 $\frac{1}{2}$	56	80
Brooklyn Rapid Transit	92 $\frac{3}{4}$	83 $\frac{3}{4}$	94 $\frac{1}{4}$	79	93	84 $\frac{1}{2}$	88
Chino Copper	47 $\frac{1}{8}$	30 $\frac{3}{8}$	44	31 $\frac{5}{8}$	49 $\frac{3}{4}$	32 $\frac{1}{4}$	45 $\frac{5}{8}$
Colo. Fuel & Iron Co.	41 $\frac{1}{4}$	24 $\frac{1}{2}$	34 $\frac{1}{2}$	20 $\frac{1}{2}$	36 $\frac{1}{2}$	21 $\frac{1}{4}$	31 $\frac{1}{4}$
Consolidated Gas	142 $\frac{3}{8}$	125 $\frac{1}{4}$	139 $\frac{1}{4}$	112 $\frac{1}{2}$	131 $\frac{1}{4}$	113 $\frac{1}{4}$	126 $\frac{1}{2}$
General Electric	187	129 $\frac{3}{4}$	150 $\frac{5}{8}$	137 $\frac{1}{2}$	175 $\frac{1}{8}$	138	170
Interborough Metropolitan ..	19 $\frac{5}{8}$	12 $\frac{3}{8}$	16 $\frac{1}{8}$	10 $\frac{1}{4}$	24 $\frac{1}{4}$	10 $\frac{1}{8}$	22 $\frac{1}{8}$
International Harvester	111 $\frac{1}{2}$	96	113 $\frac{1}{2}$	82	114	90	100
Lackawanna Steel	49 $\frac{7}{8}$	29 $\frac{7}{8}$	40	26 $\frac{1}{2}$	50 $\frac{1}{8}$	28	45 $\frac{1}{2}$
National Lead	56 $\frac{1}{4}$	43	52	40	70 $\frac{1}{4}$	44	64
Ray Consolidated Copper	22	15	22	15	26 $\frac{1}{8}$	15 $\frac{1}{4}$	23 $\frac{3}{4}$
Republic Iron & Steel	28 $\frac{3}{8}$	17	27	18	34	19	29 $\frac{1}{4}$
Republic Iron & Steel, pfd..	92 $\frac{1}{4}$	72	91 $\frac{1}{4}$	75	89	72	88 $\frac{3}{4}$
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19 $\frac{1}{2}$	42	22	32
Texas Co.	132 $\frac{1}{2}$	89	149 $\frac{7}{8}$	112	144 $\frac{1}{2}$	90	128
U. S. Rubber	69 $\frac{1}{2}$	51	63	44 $\frac{1}{2}$	74 $\frac{1}{4}$	44 $\frac{1}{2}$	51 $\frac{1}{4}$
U. S. Steel Corporation	69 $\frac{3}{4}$	49 $\frac{7}{8}$	67 $\frac{1}{4}$	48	64	38	60
U. S. Steel Corporation, pfd..	110 $\frac{3}{4}$	102 $\frac{1}{2}$	112 $\frac{3}{4}$	103 $\frac{1}{4}$	112 $\frac{1}{8}$	102	109 $\frac{1}{4}$
Utah Copper	60 $\frac{5}{8}$	39 $\frac{5}{8}$	59 $\frac{3}{8}$	45 $\frac{3}{8}$	73	48	67 $\frac{5}{8}$
Va.-Carolina Chem.	48 $\frac{1}{8}$	22	34 $\frac{7}{8}$	17	37	15	32 $\frac{1}{2}$
Western Union Telegraph ...	75 $\frac{1}{8}$	54 $\frac{1}{8}$	66 $\frac{7}{8}$	53 $\frac{3}{8}$	70 $\frac{7}{8}$	57	66 $\frac{1}{8}$

COMPOSITE STEEL.

Computation for July 1, 1915:

Pounds.	Group.	Price.	Extension.
2½	Bars	1.25	3.125
1½	Plates	1.20	1.800
1½	Shapes	1.25	1.875
1½	Pipe (¾-3)	2.10	3.150
1½	Wire nails	1.55	2.325
1	Sheets (28 bl.)	1.75	1.750
½	Tin plates	3.10	1.550
10 pounds			15.575
One pound		1.5575	

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	1.5381
June	1.6817	1.5794	1.7719	1.4750	1.5312
July	1.6701	1.6188	1.7600	1.4805	.....
Aug.	1.6394	1.6784	1.7400	1.5421	.....
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel.	Bundled Sheet.	No. 1 R. Wrought.	No. 1 Cast.	No. 1 Heavy Steel.	Phil'a.	No. 1 Heavy Melt'g. Ch'go.
1913—							
Oct.	12.25	7.40	13.00	12.40	11.20		10.35
Nov.	11.40	6.75	11.85	12.00	10.30		10.25
Dec.	11.00	6.40	11.65	11.60	9.75		9.25
Year	13.07	9.33	13.91	13.29	12.12		11.21
1914—							
Jan.	11.25	7.00	12.20	12.00	10.50		9.25
Feb.	12.00	8.25	12.80	12.50	11.50		10.70
Mar.	12.25	9.00	12.85	12.40	11.50		10.50
Apr.	12.25	9.00	12.00	12.15	10.80		10.00
May	11.75	9.10	11.75	12.25	10.60		10.00
June	11.75	9.10	11.75	12.25	10.50		9.80
July	11.75	8.50	11.75	11.50	10.60		9.75
Aug.	11.50	8.50	11.50	11.25	10.75		9.75
Sept.	11.25	8.70	10.50	11.25	10.75		9.25
Oct.	10.75	8.50	10.25	11.25	10.00		9.00
Nov.	10.10	8.10	10.25	10.75	9.25		8.25
Dec.	10.50	8.50	10.50	11.00	9.65		8.40
Year	11.42	8.52	11.51	11.71	10.53		9.55
1915—							
Jan.	11.40	9.20	10.75	11.25	10.30		9.00
Feb.	11.70	9.25	10.75	11.25	10.70		9.20
Mar.	11.80	9.37	10.75	11.50	10.85		9.25
Apr.	11.65	9.37	10.75	11.85	11.10		9.13
May	11.65	9.37	10.75	11.85	11.25		9.50
June	11.75	9.37	10.75	11.85	11.25		9.75

COMPOSITE PIG IRON.

Computation for July 1, 1915:

One ton Bessemer, valley	\$13.75
Two tons basic, valley (12.65)	25.30
One ton No. 2 foundry, valley	12.50
One ton No. 2 foundry, Philadelphia	14.25
One ton No. 2X foundry, Buffalo	12.75
One ton No. 2 foundry, Cleveland	13.25
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry, Cincinnati (12.40)	24.80
Total, ten tons	130.10
One ton	13.010

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	13.026
June	14.032	14.005	14.968	13.606	13.047
July	13.926	14.288	14.578	13.520	.....
Aug.	13.874	14.669	14.565	13.516	.....
Sept.	13.819	15.386	14.692	13.503	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv. — Phil'a.	Pitts.	Ch'go.
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug.	20.17	21.08	25.25	1.18	1.25	1.07
Sept.	20.75	21.75	26.00	1.18	1.20	1.07
Oct.	20.00	20.70	26.00	1.14	1.20	1.01
Nov.	19.25	19.75	25.00	1.13	1.20	.96
Dec.	18.75	19.25	24.40	1.12	1.20	.91
Year	20.06	20.82	25.50	1.20	1.27	1.07
1915—						
Jan.	19.25	19.75	24.80	1.12	1.20	.97
Feb.	19.25	19.75	25.00	1.12	1.20	1.03
Mar.	19.30	19.80	25.00	1.13	1.20	1.10
Apr.	19.50	20.00	25.00	1.18	1.20	1.14
May	19.50	20.00	25.00	1.18	1.20	1.15
June	20.00†	20.50†	25.00	1.20	1.20	1.17

* Premiums for Bessemer.

† Premiums for open-hearth.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	20,985,505
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	25,302,649
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	
August	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773	
September ...	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November ...	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December ...	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613	
Totals ...	\$201,271,903	\$249,656,411	\$289,128,420	\$293,934,160	\$199,861,684	\$80,812,326

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	174,313
April	93,285	100,911	117,921	228,149	267,313	259,689	161,952	223,240
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	
June	69,770	114,724	120,601	174,247	273,188	243,108	144,003	
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	
Totals	961,242	1,243,567	1,540,895	2,187,724	2,918,466	2,730,681	1,549,503	681,710

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. ..	154,118	175,463	101,804	75,286
Feb. ..	129,693	188,734	112,574	78,773
Mar. ..	157,469	164,865	68,549	88,402
April ..	178,502	174,162	111,812	91,561
May ..	194,482	191,860	125,659	
June ..	180,122	241,069	188,647	
July ..	185,677	272,017	141,838	
Aug. ..	178,828	213,139	135,693	
Sept. ..	180,571	295,424	109,176	
Oct. ..	202,125	274,418	114,341	
Nov. ..	163,017	179,727	90,222	
Dec. ..	199,982	223,892	51,053	

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan. ..	33,071	20,008	21,740	17,776	10,568
Feb. ..	20,812	11,622	25,505	14,757	7,506
Mar. ..	23,533	15,466	27,467	27,829	8,025
April ..	22,392	12,481	25,742	30,585	16,565
May ..	23,347	15,949	28,728	28,169	
June ..	29,399	21,407	36,597	23,076	
July ..	15,782	17,882	39,694	25,282	
Aug. ..	10,944	20,571	18,740	28,768	
Sept. ..	14,039	18,740	19,941	38,420	
Oct. ..	21,035	25,559	20,840	22,754	
Nov. ..	13,880	24,154	25,809	24,165	
Dec. ..	19,665	21,231	26,454	9,493	

Totals 2,104,576 2,594,770 1,351,368 834,022

Totals 236,903 225,072 317,260 290,394 42,661

CAR BUYING.

Freight cars ordered:

First half 1913	114,000
Second half 1913	33,000
Year 1913	147,000
January 1914	10,000
February	13,000
March	8,000
April	10,000
May	10,000
June	15,000
July	7,000
August	3,100
September	95
October	1,725
November	550
December	1,150
Year, 1914	80,400
January 1915	3,300
February	4,255
March	1,287
April	3,000
May	20,210
June	23,200
Six months	28,465

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns,
in tons of 2,240 pounds:

1914—	Pig iron.	Rails.	Tin Plate	Total*
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct. ..	47,188	37,005	26,950	263,834
Nov. ...	49,666	16,181	30,942	240,617
Dec. ..	31,705	16,315	30,254	212,667
Year ..	90,405	435,440	435,497	3,977,468
1915—				
Jan. ...	21,138	24,411	29,216	230,204
Feb. ...	21,934	14,877	25,101	198,804
Mar. ...	20,172	17,572	36,170	239,342
Apr. ...	35,209	21,602	40,135	264,244
May ..	29,342	21,776	33,727	267,524

* Includes scrap, pig iron, rolled iron and steel cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

OUR FOREIGN TRADE.

Value of merchandise imports and exports, and favorable trade balance, calendar years.

	Imports.	Exports.	Balance.
1900	\$829,149,714	\$1,477,946,113	\$648,796,399
1901	880,419,910	1,465,375,860	584,955,950
1902	989,316,870	1,360,685,933	391,369,063
1903	995,494,327	1,484,753,083	489,258,756
1904	1,035,909,190	1,451,318,740	415,409,550
1905	1,179,144,550	1,626,990,795	447,846,245
1906	1,320,501,572	1,798,243,434	477,741,862
1907	1,423,169,820	1,923,426,205	500,256,385
1908	1,116,374,087	1,752,835,447	636,461,360
1909	1,475,520,724	1,728,198,645	252,677,921
1910	1,562,904,151	1,866,258,904	303,354,753
1911	1,532,359,160	2,092,526,746	560,167,586
1912	1,818,133,355	2,399,217,993	581,084,638
1913	1,792,596,480	*2,484,018,292	*691,421,812
1914	*1,789,276,001	2,113,624,059	324,348,049
1915—			
Jan.	163,063,438	227,032,930	63,969,492
Feb.	149,913,918	193,996,942	44,083,024
Mar.	155,445,498	187,426,711	31,981,213
April	146,194,461	199,813,438	53,618,977
May	133,723,713	194,607,422	60,883,709
June	131,245,877	163,404,916	32,159,039
July	139,061,770	160,990,778	21,929,008
Aug.	137,651,553	187,909,020	50,257,467
Sept.	171,084,843	218,240,001	47,155,158
Oct.	132,949,302	271,861,464	138,912,162
Nov.	148,236,536	245,539,042	97,302,506
Dec.	*184,025,571	233,195,628	49,170,057
1914—			
Jan.	154,742,923	204,066,603	49,323,680
Feb.	148,044,776	173,920,145	25,875,369
Mar.	182,555,304	187,499,234	4,943,930
April	173,762,114	162,552,570	†11,209,544
May	164,281,515	161,732,619	†2,548,896
June	157,529,450	157,072,044	†457,406
July	150,677,291	154,138,947	†5,538,344
Aug.	129,767,890	110,367,494	†19,400,396
Sept.	139,710,611	156,052,333	16,341,722
Oct.	138,080,520	194,711,170	56,630,650
Nov.	126,467,062	205,878,333	79,411,271
Dec.	114,656,545	245,632,558	130,976,013
1915—			
Jan.	122,265,267	267,801,370	145,536,103
Feb.	125,123,391	*298,727,757	*173,604,366
Mar.	158,022,016	296,501,852	138,479,836
Apr.	160,576,106	294,746,117	134,170,011
May	142,284,551	273,769,093	131,484,242

* High record.

† Balance unfavorable.

STEEL MAKING PIG AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. ...	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. ...	14.225	13.60	12.059	12.50
Mar. ...	14.1667	13.60	12.041	12.50
April ...	14.00	13.60	12.00	12.50
May ...	14.00	13.659	12.00	12.67
June ...	14.00	13.75	12.00	12.74
July ...	14.00	.....	12.00	.....
Aug. ...	14.00	.....	12.00	.....
Sept. ...	14.00	.....	12.00	.....
Oct. ...	13.9375	.....	12.85	.....
Nov. ...	13.6375	.....	12.477	.....
Dec. ...	13.75	.....	12.50	.....
Year ..	13.9793	.....	12.834	.....

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February.	1.4831	1.1590	1.024
March-April	1.5430	1.176	1.087
May-June	1.5272	1.1257	
July-August	1.5029	1.0928	
September-October	1.3931	1.0847	
November-Dec'ber	1.2030	1.037	
Year's average	1.4421	1.1125	

PIG IRON PRODUCTION.

Rates per annum, including charcoal pig.

January, 1913	33,275,000
February	34,050,000
March	32,900,000
April	33,850,000
May	33,500,000
June	32,300,000
July	30,500,000
August	30,100,000
September	30,800,000
October	30,350,000
November	27,500,000
December	23,700,000
January, 1914	32,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000
March	24,600,000
April	26,060,000
May	26,800,000
June	29,250,000
July	29,600,000

Annual production:

1900	13,789,242
1910	27,303,567
1914	30,966,152
1914	23,332,244

TIN.

TIN IN JUNE.

Considering the excitement, large business, and violent fluctuations that have taken place during June in other metals, tin which generally leads the metal trade in drastic fluctuations has been comparatively quiet and uninteresting.

The course of the market has been a quiet advance during the first half of the month, followed by a similar quiet steady decline in the second half. Opening at 38c for spot, the market advanced to 42¾c by the middle of the month, and since declined 39.75c at which price the market closes. The movements of the market have been improving prices when there was good buying by consumers for future deliveries and weaker markets when buying has fallen off. For this there was a good reason, namely, the restrictions imposed by the British authorities, which has changed tin from the most speculative metal, to one in which speculation can only operate with tied hands. The fluctuations have therefore been the result of spot conditions, and the future price has been influenced almost entirely by the attitude of sellers in the East Indies, and the attitude and buying of the American consumer. These promise to be the dominant factors as long as the war and present British regulations continue. These regulations it will be remembered are that arrivals are consigned to British Consul, and only released on proper signed guarantees by the consumer or jobber. Importers, if unable to supply consumers or jobbers guarantees, are obliged to carry their spot tin in the hands of J. P. Morgan and Company at increased expense until such guarantees are forthcoming. It can thus be seen that great difficulties attend carrying the metal in speculators or importers hands for a rise, and these difficulties are reflected not only in the spot market but also in operations for future deliveries.

But for this there is no doubt that the good statistical position and the revival in the consumption of tin in America would have been exploited, and price of tin would be much higher than it is to-day.

The semi-demoralization into which trading has been thrown in the London Metal Exchange by the feeling against alien traders has also greatly curtailed specula-

tion and trading in that market, and from a daily average sales of 500 tons or more, transactions have dropped one-half to one-third this amount and sometimes less than 100 tons.

A tense situation has at times ruled in New York on spot during the month, and spot and near by deliveries have commanded a premium around 2½c to 2c per lb. over Sept., Oct., Nov. and Dec. This premium promises to be cut down, for the reason, that although spot stocks can only be carried with great difficulty, still there are large arrivals en route to this country.

Consumers are keeping themselves well booked ahead, and carrying good stocks

TIN PRICES IN JUNE.

New York.		— London —			
		Prompts.		Futures.	
Day.	Cents.	£	s	d	£ s d
1	38.00	160	10	0	160 0 0
2	37.75	160	0	0	159 10 0
3	37.65	159	10	0	159 0 0
4	38.12½	162	5	0	161 15 0
5	.....	.....	.....	.....	.....
6	.....	.....	.....	.....	.....
7	39.00	164	5	0	163 15 0
8	40.25	166	5	0	165 5 0
9	40.25	166	10	0	165 10 0
10	40.25	166	0	0	164 5 0
11	40.75	168	0	0	166 0 0
12	.....	.....	.....	.....	.....
13	.....	.....	.....	.....	.....
14	42.75	174	10	0	170 0 0
15	42.50	173	10	0	169 10 0
16	41.75	169	0	0	167 0 0
17	41.25	168	0	0	165 15 0
18	41.00	168	10	0	166 0 0
19	.....	.....	.....	.....	.....
20	.....	.....	.....	.....	.....
21	41.75	170	10	0	168 0 0
22	41.50	168	15	0	166 10 0
23	41.00	168	0	0	165 15 0
24	41.00	168	5	0	166 10 0
25	41.50	171	0	0	168 0 0
26	.....	.....	.....	.....	.....
27	.....	.....	.....	.....	.....
28	40.50	171	0	0	168 0 0
29	40.12½	171	15	0	168 10 0
30	39.75	172	0	0	168 5 0
Highest	42.75	174	10	0	170 0 0
Lowest	37.65	159	10	0	159 0 0
Average	40.373	167	12	8	165 11 7

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.

	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,785
May	15,938	14,345	13,710	17,862	14,646
June	16,605	12,920	11,101	16,027	15,927
July	16,707	13,346	12,063	14,167	.....
Aug.	16,619	11,285	11,261	14,452	.....
Sept.	16,672	13,245	12,943	14,613	.....
Oct.	14,161	10,735	11,857	10,894	.....
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	5,270
May	4,965	4,310	5,760	6,160	6,900	6,759
June	4,120	5,050	4,290	4,820	5,870	6,665
July	5,040	4,660	4,580	4,770	4,975	.....
Aug.	5,700	4,680	5,210	6,030	3,315	.....
Sept.	4,220	5,150	5,430	5,160	4,973	.....
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	3,200
May	3,600	3,400	4,250	3,350	3,800	5,600
June	5,000	2,900	2,850	3,800	3,650	3,900
July	3,800	4,300	5,150	3,900	3,900	.....
Aug.	3,700	3,800	4,300	3,600	2,900	.....
Sept.	3,300	4,200	3,600	3,100	3,600	.....
Oct.	3,350	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	June,	May,	June,
	1915.	1915.	1914.
Straits shipments	1915.	1915.	1914.
To Gr. Britain..	2,730	2,031	3,034
" Continent ..	860	923	1,551
" U. S.	3,075	3,805	1,285
Total from Straits	6,665	6,759	5,870
Australian shipments			
To Gr. Britain ..	141	153	131
" U. S.	nil	nil	nil
Total Australian.	141	153	131
Consumption			
London deliveries	2,009	2,276	1,503
Holland deliveries	100	83	1,625
U. S.	3,900	5,600	3,650
Total	6,009	7,959	6,778
Stocks at close of month,			
In London—			
Straits, Australian	1,580	1,716	3,333
Other kinds	800	1,673	3,080
In Holland	62	63	1,005
In U. S. excl. Pacific	2,319	1,423	1,358
Total	4,761	4,855	8,776

Straits afloat, close of month

To London	3,236	3,071	4,324
Banca and Billiton			
To London	520	65	183
Total London ..	3,756	3,134	.....
To United States	.....	.....	.....
Straits	7,245	6,470	.....
Banca	165	165	.....
Total U. S.	7,410	6,635	2,744
Grand total	11,166	9,769	7,251
	June 30,	May 31,	June 30,
Total visible	1915.	1915.	1914.
supply	15,927	14,646	16,027

STRAITS TIN PRICES IN NEW YORK.

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.93
Apr.	42.20	44.02	49.12	36.10	47.97
May	43.10	46.12	49.14	33.30	38.78
June	46.16	47.77	41.93	30.65	40.31
July	42.96	44.75	40.39	31.75	.....
Aug.	43.45	45.87	41.72	50.59½	.....
Sept.	39.98	49.18	42.47	32.79	.....
Oct.	41.21	50.11	40.50	30.39	.....
Nov.	43.13	49.90	39.81	33.50	.....
Dec.	44.97	49.90	37.64	33.60	.....
Year	42.68	46.43	44.32	35.70	.....

ANTIMONY — ALUMINUM

at their factories for safety purposes, as there is nothing to prevent a steamer with tin being sent to the bottom at any moment, and this dread is always present.

The metal would seem at present prices to be on a safe basis for consumers to book their future requirements, as prices are 5c to 10c per pound below the average of normal years like 1911, 1912 and 1913. Also the war is not over or likely to be for some time, and is always likely to be attended by developments only in one direction; namely, to make supplies of tin and transportation difficult.

It is reported, that in addition to the smelter being erected near New York by the American Smelting and Refining Company for the smelting of Bolivian concentrates, that Williams, Harvey and Company, the large English tin smelters, have advised their Bolivian clients that they are establishing a modern tin smelter in the United States dealing with Bolivian ores.

ANTIMONY SITUATION.

Just as was the case in other metals, antimony was in good demand during the early part of June, and the market witnessed an advance from 34.75c to 37.50c on the Chinese and Japanese grades. In the second half of the month only an occasional sale was made but the situation being a strong one, there was no reaction in prices. Both China and Japan sold large quantities early in the month at around 32.50c to 33.50c c.i.f. New York in bond, and at the close were asking 33.50c to 34.00c although there were no buyers at this price.

The regular consumers of antimony are pursuing a hand-to-mouth policy, and the makers of shrapnel continue to be the best buyers, although lately the demand from this quarter has been spotty and irregular. The price has gone so high that it has killed speculation in the metal, and the operations between dealers which were very often the life of the market, have ceased almost entirely.

The production of antimony in China is said to be undergoing a very considerable increase which is natural considering that

the metal pays about 500% profit at the current market value. According to Huan-Hi Liang, President of the Sue Kow Shan Government Lead Mines, Hunan, and the Wah Chang Mining & Smelting Company, Changsha, Province of Hunan, a combination has been formed of the small producers of crude antimony whereby all their output will be turned over to these companies and smelted at their plants. Formerly most of the crude antimony mined was shipped to Europe and elsewhere, but for the future the export of antimony will be nothing other than the refined antimony metal.

ALUMINUM SITUATION.

The advance which started at the end of April and which carried the price of aluminum to 26c on June 1st, was continued during June, and at the close of the month the market was strong at 32c. The supply of aluminum for prompt delivery has been so scarce that the market advanced on comparatively light buying.

The domestic producer seems to have more business than they can handle, and the producers of remelted aluminum are also well sold up at high prices.

The supply of foreign aluminum for this market has been cut down, as the French government has taken over all the aluminum works in France to be used for ammunition purposes. France is the second largest producer of aluminum in the world and in 1913 produced a little more than 25% of the total.

The situation as in copper, spelter and antimony is an altogether abnormal one, but unlike those other metals it was not until the war had gone for eight months that the demand began to exceed the supply to an appreciable extent. The high prices of those other metals has increased the use of aluminum, particularly in sheet form, and the activity in the automobile trade, both for export and home account, has placed the aluminum casting plants in full operation again.

The market is a strong but a limited one.

ANTIMONY — ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	32.07
May	9.48	8.00	8.77	7.29	39.75
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av. . .	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Hallett's antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	29.41
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av. . .	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY.

Average monthly price of Chinese and Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93½
Apr.	8.34	6.87	7.82	5.82	23.97
May	8.06	6.98	7.75	5.78	24.71
June	7.38	7.07	7.62	5.62½	26.53
July	7.32	7.37	7.35	5.44	.....
Aug.	7.22	7.58	7.48	13.05	.....
Sep.	7.13	8.00	7.31	9.79½	.....
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.74	.....
Dec.	6.97	9.05	6.05	17.15	.....
Av. . .	7.48	7.63	7.43	8.53½	.....

ALUMINUM, SILVER and ANTIMONY PRICES IN JUNE.

Aluminum.		— Silver —		Antimony	
Day.	N. Y.	N. Y.	London.	N. Y.	
	Cents	Cents	Pence.	Cents	
1 ..	26.50	49½	23½	34.75	
2 ..	26.50	49½	23½	34.75	
3 ..	27.50	49½	23½	34.75	
4 ..	27.50	49½	23½	35.25	
5 ..	.....	49½	23½	.....
6 ..	.....	.....	.....	.....
7 ..	28.50	49½	23½	35.50	
8 ..	28.50	49½	23½	35.75	
9 ..	28.50	49½	23½	35.75	
10 ..	29.00	49½	23½	36.75	
11 ..	29.00	49½	23½	37.00	
12 ..	.....	49½	23½	.....
13 ..	.....	.....	.....	.....
14 ..	29.00	49½	23½	37.50	
15 ..	29.00	49½	23½	37.50	
16 ..	31.00	49½	23½	37.50	
17 ..	31.00	49½	23½	37.50	
18 ..	31.00	49½	23½	37.25	
19 ..	.....	49½	23½	.....
20 ..	.....	.....	.....	.....
21 ..	32.00	49½	23½	37.25	
22 ..	32.00	48½	23½	37.00	
23 ..	32.00	48½	23½	37.00	
24 ..	31.00	48½	23½	37.00	
25 ..	30.00	48½	23½	37.00	
26 ..	.....	48½	23½	.....
28 ..	30.00	48½	23½	37.00	
29 ..	31.00	48	22½	37.00	
30 ..	32.00	48	22½	37.00	
High	33.00	49½	23½	38.00	
Low	26.00	48	22½	34.50	
Av'ge	29.659	49.034	23.264	36.564	

ALUMINUM AND SILVER PRICES.

		New York					
		— Aluminum —			— Silver —		
		1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.93	57.56	48.89½	
Feb.	26.20	18.80½	19.20	61.64	57.50½	48.48	
Mar.	26.72	18.30	18.95	57.87	58.07	50.24	
Apr.	26.91	18.08	18.83	59.49	58.22	50.25	
May	25.95	17.93	21.85	60.36	58.18	49.91	
June	24.79	17.82	29.66	58.99	56.47	49.07	
July	23.34	17.59	.....	58.72	54.68	.....
Aug.	22.73	20.38	.....	59.29	54.34	.....
Sep.	22.00	19.28½	.....	60.64	53.29	.....
Oct.	20.32	18.25	.....	60.79	50.65	.....
Nov.	19.49	18.83	.....	58.99	49.10	.....
Dec.	18.85	19.02	.....	57.76	49.38	.....
Av.	23.63	18.59½	.....	59.79½	54.81	.....

COPPER.

COPPER SITUATION.

A very large business was done in copper during the first half of June, estimated by some as being the largest ever done in a single fortnight, and the market advanced from 18.75c to 20.50c for Electrolytic. The market in London was also very strong, and Standards went from £78 17s 6d to £86 5s with Electrolytic naturally following the values established for this grade in this country.

During the second half of the month the market was dull to the point of stagnation, but having sold so heavily earlier in the month the producers were able to hold the market steady, and it was not until after July 1st that they made any price concessions.

The amount of copper in outsiders' hands was not sufficiently large to disturb the market during this dull period, although the absorbing power of the market on some days was absolutely nil. With the beginning of July and new deliveries to be taken care of, the offerings by outsiders increased, and this has brought on the first real reaction that the market has had since it started its advance from 11½c last November. The loss to date, July 10th, amounts to nearly one cent per pound.

The decline in Standard copper in London has been even more severe and the weakness of Standards has lately been a matter of comment in this market. The spread between Standard and Electrolytic has gone beyond £15 a ton, and while it is explained by the statement that Standard copper is of no use for ammunition work and therefore in little demand in England to-day, still in a strong copper market no such difference should exist. The war has curbed speculation in England and Standard is the special property of the speculator, and moreover as England prohibits the export of copper in any form these stocks of Standard cannot be sent to this country for consumption or refinement. We question however, whether this copper would be brought here even if it were possible and we also question whether these very low prices would prevail if copper was well regarded at present by the English metal trade.

It is nothing less than remarkable that the price of copper should have advanced nearly 100% and the production increased from 60% to nearly 90% since last November, despite the loss of German trade of about 500,000,000 pounds yearly, or 40,000,000 pounds monthly. This affords some idea of the enormous consumption of copper in war materials, for while ordinary domestic consumption has increased, it is the war orders which have been the very life of the copper industry for months past—war orders for raw copper and in the form of brass rods, sheets, shells and cartridge cases. If the Allies' requirements can be

COPPER PRICES IN JUNE.

— New York — London.

	Lake.	Electro.	—	Standard.
Day.	Cents.	Cents.	Cents.	£ s d
1	19.00	18.75	17.50	78 17 6
2	19.00	18.75	17.50	79 5 0
3	19.12½	18.93¾	18.12½	80 12 6
4	19.25	19.06¾	18.37½	81 2 6
5 ....	.....	.....	.....	.....
6 ....	.....	.....	.....	.....
7	19.50	19.43¾	18.50	83 0 0
8	19.62½	19.62½	18.62½	82 10 0
9	19.87½	19.87½	18.87½	83 0 0
10	20.12½	20.12½	19.12½	83 10 0
11	20.25	20.12½	19.18¾	84 10 0
12 ....	.....	.....	.....	.....
13 ....	.....	.....	.....	.....
14	20.50	20.37½	19.50	86 5 0
15	20.50	20.37½	19.31¼	86 5 0
16	20.50	20.37½	19.25	85 10 0
17	20.37½	20.12½	19.12½	83 5 0
18	20.25	19.87½	18.87½	82 0 0
19 ....	.....	.....	.....	.....
20 ....	.....	.....	.....	.....
21	20.25	20.00	19.00	83 0 0
22	20.25	19.87½	19.00	82 15 0
23	20.25	19.75	18.87½	82 0 0
24	20.00	19.62½	18.75	80 17 6
25	20.00	19.75	18.75	82 5 0
26 ....	.....	.....	.....	.....
27 ....	.....	.....	.....	.....
28	19.87½	19.62½	18.75	82 5 0
29	19.87½	19.62½	18.75	82 2 6
30	19.87½	19.62½	18.62½	81 15 0
Highest	20.62½	20.50	19.62½	86 5 0
Lowest	18.87½	18.62½	17.37½	78 17 6
Av'ge	19.92	19.713	18.744	82 11 5

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37½	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.27	15.73	14.44	18.81
June	12.63	17.43	15.08	14.15	19.92
July	12.72	17.37	14.77	13.73	.....
Aug.	12.70	17.61	15.79	12.68	.....
Sept.	12.57	17.69	16.72	12.44	.....
Oct.	12.47½	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av..	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	18.60
June	12.55	17.29	14.85	13.81	19.71
July	12.62½	17.35	14.57	13.49	.....
Aug.	12.57½	17.60	15.68	12.41½	.....
Sept.	12.39	17.67	16.55	12.09	.....
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50½	14.47	12.93	.....
Av..	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of **Casting Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.33	14.18	16.48
May	12.08	16.01	15.45½	14.00	17.41
June	12.40	17.08	14.72	13.65	18.74
July	12.49½	17.09	14.40½	13.34½	.....
Aug.	12.42	17.35	15.50	12.27	.....
Sept.	12.23	17.51	16.37½	12.00	.....
Oct.	12.21	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56½	17.34	14.22	12.83½	.....
Av..	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since September 1, 1914 are given in the following table together with the price of Lake copper on the same dates:

	1914—	Sheet Copper.	Lake Copper.
September 1	17.50	12.62½	
October 1	17.00	12.12½	
October 22	16.50	11.50	
November 19 ...	17.00	12.25	
November 23 ...	17.50	12.62½	
December 1,	18.00	12.90	
December 15 ...	18.50	13.50	
1915—			
January 16	18.75	13.75	
January 21	19.00	14.12½	
January 25	19.50	14.37½	
January 29	19.75	14.62½	
March 22	20.25	15.12½	
March 25	20.50	15.43¼	
March 27	20.75	15.75	
April 8	21.00	16.50	
April 13	21.25	16.62½	
April 14	21.50	16.75	
April 17	22.00	17.00	
April 19	22.50	17.62½	
April 22	23.00	18.00	
April 23	24.00	18.93¾	
June 30	25.00	19.87½	

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914.	1915.
January ...	31,229	25,026	30,018	26,193
February ...	31,894	26,792	34,634	15,583
March ...	27,074	42,428	40,504	30,148
April ...	22,591	33,274	35,079	18,738
May ...	32,084	38,601	32,077	28,889
June ...	26,669	28,015	35,182	*15,751
July ...	26,761	29,596	34,145	.....
August ...	29,526	35,072	16,509	.....
September ...	25,572	34,356	19,402	.....
October ...	25,020	29,239	23,514	.....
November ...	19,171	29,758	24,999	.....
December ...	29,474	30,653	22,166	.....
Total ...	327,965	382,810	360,229	.....

* Includes only exports from Atlantic ports.

COPPER — SPELTER.

barely supplied by us, it difficult to see how Germany and Austria are succeeding to get along although it is safe to say that not a pound of copper is being used by the Teutons except for war purposes, and every copper article that can be utilized is being scrapped.

We believe that the war demand has reached the maximum, and we therefore believe that the copper market has reached the top, at any rate for the time being. It is a question whether there are facilities to use any more copper either in this country or in England or France than is being used at present, and as the production of the metal can be further enlarged, the market would be doing well to maintain itself at a 20c level. Copper is certainly very high, and no such prices have been seen in the present generation except during the boom of 1906-7. The average price of copper for the past 30 years was about 13.75c, so the price is now 50% above the average. This fact is likely to impress itself on buyers, and it is a safe calculation that neither consumers nor dealers will be willing to carry large stocks, or will be willing to buy ahead with the same freedom as they did during the earlier months of the year. Copper is undeniably high, considering the situation, but it is high enough to warrant caution on the part of consumers.

THE COPPER INDUSTRY HIGHLY PROSPEROUS.

(From U. S. Geological Survey.)

The mid-year review of the copper situation by B. S. Butler of the United States Geological Survey records a general betterment in the six months period.

In the beginning of the year 1917 most of the large copper producing companies of the United States had for nearly five months been operating on a 50% to 60% basis and probably none were producing at normal capacity. A considerable proportion of the smaller producers had shut down their plants, where this could be done without great loss. Developments and improvements had been generally suspended. Copper was selling below 13 cents a pound and had been considerably lower. Wages had been reduced in most of the camps and

many men had been either laid off or were employed only part time.

Soon after the first of the year, however, there was a notable improvement in the demand for copper and the price has rather steadily advanced from below 13 cents to about 20 cents a pound, the highest price reached since 1907. With the increase in demand, and the advance in price, there has been a corresponding steady increase in the production of the metal and at the present time most of the larger producers have brought their output to normal, while many of the smaller producers have resumed operations. The output of copper has also probably nearly or quite reached the normal. Wages have been raised in the camps where reduction had taken place and the industry in general is in a highly prosperous condition.

SPELTER SITUATION.

The price of spelter in June advanced from 22.50c St. Louis to 26.50c, reacted to 17.75c and then advanced again, closing at 21.75c. The extreme fluctuation was therefore nearly 9c per pound, but at the close of the month was in a firm condition at about halfway between the high and low prices.

For the first few days of the month the market was very strong on large buying by consumers, and there was apparently a great scarcity of spelter for all deliveries, but when the demand fell off the offerings increased and the price gave way through lack of support. There was scarcely any buying by domestic consumers during the reaction, but the decline was checked by purchases by dealers and for export and for account of war munitions. Also towards the close of the month labor troubles at the mines threatened to curtail the supply of zinc ore, and this also had a strengthening effect on the market.

The market however, has given no signs of reaching its previous high record and as buyers have seen the uselessness of all trying to buy at once when sellers are not disposed to trade, we are not apt to have a repetition of the wild market of the beginning of June.

SPELTER.

There is an accumulation of evidence, that the abnormal price of spelter has caused serious inroads in the consumption of the metal for galvanizing purposes, and for brass purposes outside of war munitions, and in the form of sheet zinc. Notwithstanding the gain in the steel trade the production of galvanized sheets has fallen off, and it is all due to 25c spelter which sent the price of sheets so high as to restrict the demand. Both jobbers and consumers are buying only against urgent requirements, and are reducing their stocks and there is no mill in the country which would be willing to operate ahead of their order book at this level.

The substitutes for galvanized sheets such as lead coated sheets, terne plates and painted black sheets are coming into favor due to their present respective costs just as copper and aluminum and lead are displacing spelter, brass and sheet zinc in other directions.

SPELTER PRICES IN JUNE.

New York.		St. Louis.	London.
Day.	Cts.	Cts.	£ s d
1	23.00	22.50	92 10 0
2	25.00	24.50	95 0 0
3	26.50	26.00	95 0 0
4	27.00	26.50	95 0 0
5			
6			
7	26.75	26.25	102 10 0
8	26.50	26.00	105 0 0
9	26.25	25.75	105 0 0
10	24.75	24.25	107 10 0
11	23.75	23.25	110 0 0
12			
14	23.25	22.75	110 0 0
15	22.25	21.75	110 0 0
16	21.25	20.75	110 0 0
17	20.25	19.75	110 0 0
18	19.75	19.25	110 0 0
21	18.50	18.00	102 10 0
22	18.25	17.75	90 0 0
23	18.75	18.25	92 10 0
24	19.25	19.00	87 10 0
25	20.75	20.25	91 0 0
28	21.75	21.25	92 10 0
29	22.00	21.50	100 0 0
30	22.25	21.75	100 0 0
Highest ..	27.50	27.00	110 0 0
Lowest ..	18.25	17.50	87 10 0
Average ..	22.625	22.136	100 12 3

The war order business shows no falling off, and the demand for brass for ammunition is limited only by the mill facilities for handling the orders that are available. It has been lately rumored however, that England is figuring to use a steel case instead of a brass case for field gun shells and a substitution of this order would be put into the spelter very heavily. However this would probably be only in the emergency of spelter not being procurable in sufficient quantities.

England seems to have been greatly worried a short while ago regarding her metal supply, and for a time it seemed likely that the government would take over all stocks and would cause restrictions to be placed on the uses of metals wherever it was seen that private consumption was interfering with the manufacture of ammunition. The fact that the British government has not taken this step is a proof that she has been assured a sufficient supply of spelter for the time being.

The U. S. Steel Corporation announced in June that they would erect a zinc smelter to be ready for operation by the end of the year. It is reported they will use Australian ores. It will be the largest smelter in the country, and is reckoned to have a final capacity of 40,000 tons a year. Other large consuming interests have smelters under consideration, and as new smelters and additions to old smelters are being built by the regular trade the smelting capacity by the beginning of 1916 promises to be well over 600,000 tons, or 240,000 tons over the record output in 1914. When the war ends new uses for spelter will have to be developed or a steady export trade developed if the smelters are to be kept even moderately busy.

The zinc miners' strike followed the reduction in wages when the spelter market declined, and if the miners waive their demand for the recognition of a union a settlement is likely to be reached without any trouble. The trade expects to see the matter settled before the middle of July.

It is impossible to measure the decrease in the ordinary domestic consumption, but the decrease is certainly there, and it is a matter that will have to be reckoned with hereafter.

SPELTER.

LEAD AND ZINC MINES SHOW INCREASING ACTIVITY.

(From U. S. Geological Survey.)

"The high price of spelter that has obtained almost continuously since the European war began, has greatly stimulated the mining and smelting of zinc ore in the United States. The recent rise in the price of lead has given a double impetus to mining in those regions, such as the Joplin district, where the zinc ores are associated with lead ores." This is the introductory statement in the mid-year review of the lead and zinc situation by C. E. Siebenthal, of the United States Geological Survey.

The present smelting capacity is scarcely equal to the demands upon it. This renders it imperative that as much spelter as possible be produced per retort and puts a premium upon high-grade ores. The Joplin district blende averages about 58% zinc content, though a considerable quantity of the concentrates averages 60% and higher and contains very little iron or lead; that of eastern Tennessee averages over 60%, and Butte, Mont., 55%; Wisconsin district blende averages 55 to 60% after roasting and magnetic treatment to remove the iron. High-grade calamine ores are also in demand, and an increased yield is being made from Arkansas and Missouri, also lead-free New Jersey ores are in demand.

The spelter required for the manufacture of munitions of war must be of good quality, suitable for making sheet zinc and brass, and particularly of the highest grade for brass cartridge shells. This puts a further premium on the higher grade, purer zinc ores. To meet the demand for such metal, some smelters are redistilling their output to bring it up to a high standard, and are thus able to use a lower grade of ore. Such a method reduces the output of the plant by one-half, however, and adds greatly to the cost of the product.

The lack of smelting capacity has resulted in starting up old coal-fired plants in Missouri and Kansas that had been out of commission for years. All smelters are being rushed to their maximum capacity and additions to capacity are being rushed to completion.

The high-grade zinc ores of the Joplin

regions are in greatest demand, and the district is teeming with activity. Churn drills are prospecting on every hand. Innumerable new shafts are being sunk, and old ones reopened. Old diggings are being unwatered, for ground too lean to work at previous prices can now be operated at a profit. The drilling campaign that has been proceeding north of the Miami, Okla., district for more than a year has resulted in many rich strikes and a number of concentrating plants are being built. This region is just now the most active part of the Joplin district.

Demand for lead during the early part of 1915 was not sufficient to increase prices materially, but in March the price per pound averaged above 4 cents for the first time since February, 1914. In April and May the advance continued, and during June there was a marked increase past 5 cents and well beyond 6 cents per pound. The lead-zinc, and silver-lead mines will, of course, benefit by return to favorable prices for lead, and this market, so slow to respond to the general revival, has thrown another favorable factor into the metal mining situation at the half-year end. The lead production had probably been above normal demands for it in 1914, however, and amount of surplus stocks is not known.

SPELTER PRICES IN ST. LOUIS.

Extreme fluctuations of Prime Western Spelter, East St. Louis delivery, by months and years:

	— 1914 —			— 1915 —		
	High.	Low.	Av'ge.	High.	Low.	Av'ge.
Jan.	5.25	5.10	5.14	7.62½	5.55	6.33
Feb.	5.35	5.20	5.27	10.00	7.65	8.62
Mar.	5.22½	5.12½	5.15	11.00	8.87½	9.80
Apr.	5.12½	4.85	5.03	14.00	9.25	11.22
May	5.00	4.90	4.96	21.00	13.00	15.52½
June	4.95½	4.82½	4.93	27.00	17.50	22.14
July	4.95	4.80	4.84	.....	.....	.....
Aug.	6.00	4.70	5.45	.....	.....	.....
Sep.	5.85	4.95	5.35	.....	.....	.....
Oct.	5.00	4.60	4.81	.....	.....	.....
Nov.	5.20	4.80	4.97	.....	.....	.....
Dec.	5.65	5.20	5.49	.....	.....	.....
Year	6.00	4.60	5.11½	.....	.....	.....

LEAD.

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc since the beginning of 1915 together with the price of spelter ruling on the same day.

1915—	Sheet Zinc.	Spelter St. Louis.
January 12	9.00	5.90
January 19	9.25	6.10
January 21	9.50	6.75
January 26	10.00	7.31 ¹ / ₄
February 2	10.50	7.87 ¹ / ₂
February 8	11.00	7.93 ³ / ₄
February 8	11.50	8.00
February 12	12.00	8.25
February 19	12.50	9.25
March 1	13.00	10.25
March 5	13.50	11.00
April 22	14.75	12.12 ¹ / ₂
April 23	14.50	12.37 ¹ / ₂
April 27	15.50	13.75
April 28	16.00	13.75
April 30	17.50	13.75
May 18	18.50	15.12 ¹ / ₂
May 20	19.50	16.00
May 25	20.00	18.75
May 26	22.00	19.25
May 29	24.50	20.75
June 1	26.00	22.50
June 3	30.00	26.00
June 9	33.00	25.75
June 14	30.00	22.75
June 23	27.00	18.25

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	5.77	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.70	11.85
Mar.	6.01	7.17	6.56	5.59	12.15
Apr.	5.85	7.07	6.08	5.50	13.85
May	5.76	7.13	5.77	5.28	20.55
June	5.89	7.25	5.50	5.37	25.60
July	6.11	7.46	5.61	5.26	....
Aug.	6.29	7.34	5.99	5.66	....
Sep.	6.29	7.72	6.13	5.91	....
Oct.	6.49	7.83	5.74	5.23	....
Nov.	6.90	7.74	5.60	5.38	....
Dec.	6.81	7.65	5.44	5.90	....
Av...	6.16	7.33	6.06 ¹ / ₂	5.53 ¹ / ₂	....

LEAD SITUATION.

The month of June will long be remembered as the most sensational that has ever been experienced in the lead trade. Following a steady advance which began January 28th, from 3.70c New York, the month opened with the Trust price at 4.90c New York, and the following rapid advances took place:

June 3	5.00
" 4	5.20
" 7	5.50
" 8	5.75
" 9	6.00
" 10	6.25
" 11	6.50
" 14	7.00

There had never been such an advance in lead as had taken place during these few weeks and the previous week amounting to 3.30c per pound or 80%.

But the Trust price hardly at any time represented the market which was always from $\frac{1}{8}$ c to $\frac{3}{8}$ c per pound higher, and completely out of the control of this dominant

LEAD PRICES IN JUNE.

Day.	New York.*	St. Louis.	London.
	Cts.	Cts.	£ s d
1	4.90	4.82 ¹ / ₂	21 10 0
2	4.97 ¹ / ₂	4.85	22 15 0
3	5.05	4.95	23 8 9
4	5.30	5.20	25 7 6
7	5.65	5.56 ¹ / ₄	24 10 0
8	5.92 ¹ / ₂	5.80	25 15 0
9	6.20	6.20	26 12 6
10	6.62 ¹ / ₂	6.50	27 12 6
11	7.12 ¹ / ₂	7.00	27 17 6
14	7.56 ¹ / ₄	7.37	28 2 6
15	7.20	7.00	27 17 6
16	6.25	6.25	25 12 6
17	6.12 ¹ / ₂	6.00	25 12 6
18	5.87 ¹ / ₂	5.75	26 2 6
21	5.45	5.32	24 16 6
22	5.40	5.32	24 12 6
23	5.40	5.37	24 13 9
24	5.40	5.37	24 5 0
25	5.45	5.40	24 7 6
28	5.60	5.52	24 15 6
29	5.65	5.57 ¹ / ₂	25 14 3
30	5.70	5.60	26 5 0
Highest	7.62 ¹ / ₂	7.50	28 2 6
Lowest	4.90	4.80	21 10 0
Average ...	5.86	5.76 ¹ / ₂	25 3 10

* Outside market.

LEAD.

factor. In fact on July 14th. when the Trust price was 7.00c, large sales were made as high as 7½c and 7¾c. Buyers acted as if they were crazy in the rush to get lead at any price.

No matter what price the Trust gave out as their official price there instantly were found buyers at a higher price, forcing the Trust to almost daily advance their figure. The cause for this was a wild general scramble and speculation in the metal, partly on the belief that lead was in a war market and might repeat what had happened in spelter and antimony, and also perhaps manipulation to affect the lead stock market and especially the price of Federal Mining & Smelting Company, that stock advanced from \$12 on June 1st, to \$60 on June 12th. In some quarters a strong suspicion was created that some of the heavy buying was by German interests to embarrass making of ammunition since shipments of ammunition could not be stopped to the Allies. Whatever the basis was for the sensational and extraordinary rise it was proved to be unsound, as on the 16th, on the publication of a criticism of the advance by the "AMERICAN METAL MARKET" which we give elsewhere, a wild rush to make sales, resulting in sensational decline, which as far as the Trust is shown in the following prices:

June 17	6.25
" 18	6.00
" 21	5.75

Since then the Trust price has remained unchanged, although the the eager selling of frightened speculators around the 20th put the outside price as low as 5.40c New York. Since then there has been a recovery in the outside market to almost the Trust equivalent, and it now looks as if this factor has again got into control of the situation. They would never have lost it but for their refusal to sell futures during the excited advance.

It is interesting to note that Federal Mining & Smelting stocks that sold at \$60 on June 12th are to-day, July 8th, \$24.

It will be a long time before the trade will allow themselves to be stampeded on nothing, and a good many scars remain unhealed.

There is no reason to think the metal

cheap at present prices. If the first nine months of the war only put lead up less than ¾c per pound to 4.20c New York, what change is there in the ammunition demand to justify even present prices after the late reaction? If these prices are to hold, we can sell no lead abroad unless a great change is to take place in the foreign market which is ¾c below present prices, and the question comes up what are we to do with the 100,000 tons we normally export yearly to Europe.

The American Smelting & Refining Company has seceded from the English lead syndicate. This company, commonly known as the Lead Trust, has handled the bulk of the domestic lead which has been exported, amounting to 39,772,895 pounds in April and 151,497,474 pounds during the ten months ending April. In addition to this there was exported during April 10,265,819 pounds of lead of foreign origin which was a large increase over previous months. But with the Trust price at 5.75c New York, and the market in London at 4.92½c, the exports of domestic lead would have to cease, and as we do not believe that the producers can afford to lose their foreign trade of about 100,000 tons per annum, we look to see the price in the two markets come together again. The question is whether our market will have to decline or the London market advance. The trade will do well to pay attention to the London market for that will undoubtedly show how the market here is going to go.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	4.35	4.11	3.74	4.20	3.99½	3.57
Feb.	4.35	4.06	3.82	4.20	3.95	3.72
Mar.	4.35	3.97	4.03	4.21	3.83	3.98
Apr.	4.40	3.82	4.19	4.25½	3.70	4.11
May	4.36	3.90	4.23½	4.22	3.81	4.16
June	4.35	3.90	5.86	4.21	3.80	5.76
July	4.37	3.90	....	4.25	3.75	....
Aug.	4.63	3.90	....	4.56	3.73½	....
Sep.	4.75	3.86	....	4.62	3.67	....
Oct.	4.45	3.54	....	4.31	3.39	....
Nov.	4.34	3.68	....	4.18	3.58	....
Dec.	4.06	3.80	....	3.94	3.67	....
Av.	4.40	3.87	....	4.26	3.74	....

* Trust price.

LEAD.

WHAT IS AT THE BOTTOM OF THE SENSATIONAL RISE IN LEAD AND SPELTER.

(From the "American Metal Market," of June 14th.)

The sensational rise that has taken place in spelter and lead, the rise in the former being 16c per pound within three months and in the case of the latter from 4.20c to 7.50c within three weeks, finds no explanation in the increased demand for war munitions or exports of the metal, nor in the trade speculation that has attended the latter article during the past two weeks. Neither can it be laid to any reduced output. As a matter of fact, since this advance has commenced there has been a very large increase in output. In the case of spelter, the production which was 380,000 tons last year is now proceeding at the rate of 500,000 tons, and while the output of lead is not as well known, the independent plants have certainly increased their output at the rate of 25% in the past few months, which is quite natural to take advantage of the enormous profits which present prices afford and which are beyond the dreams of avarice. No such advance could have taken place without extraordinary and enormous purchases. Who have been the buyers, and why?

We have good reason for believing that there has been enormous buying of spelter and lead by a coterie of individuals not connected with the metal trade, but closely connected with large German financial interests, and that their operations are being conducted from New York. We understand that the orders emanating from this coterie have been distributed through second and third hands to disguise the operations, to give the impression that they are from various quarters in connection with war orders and for export. We also believe that some prominent interests in the metal trade who have the selling of a considerable proportion of the American production of spelter and also large sellers of lead, have lately had their suspicions aroused, and have in the past few days been closely examining the orders tendered them, and are now des-

clining to sell except where they are positively certain the material is for consumption for American industrial purposes for home use, or else to be put into materials to be made in this country as in the case of ammunition.

On paper these purchases show sensational profits, but they are only on paper, and unless the production of these metals is to be curtailed they are sure to show a heavy loss to the manipulators, as an enormous increase in production is certain as a result of the profits to producers at present prices. Still if these purchases result in retarding the supply of these metals (spelter and lead) for war munitions, the final loss that may follow will be as nothing to the results they may accomplish if the object for which they have been made, has been to interfere with output of ammunition. Since Germany finds she cannot stop shipments from America of said ammunition, she may be endeavoring to harass the makers of ammunition by cornering the raw supplies.

If our view is correct both spelter and lead are in a dangerous position at present prices, and the trade cannot say they have not been warned.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., of The Steel and Metal Digest, published monthly at New York, N. Y., required by the Act of August 24, 1912.

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A. R. Trench, Business Manager.
Sworn to and subscribed before me this fifth day of April, 1915.

(Seal) John Bowen,
Notary Public, Kings Co.
(My commission expires March 30, 1916)

REVIEW OF THE JOPLIN ORE MARKETS.

Advances recorded in the zinc ore market during the month of June were greater than ever before, all previous high price records being broken. The market the first two weeks of the month was unusually strong, the zinc ore buyers sought a large tonnage of ore and offered very high prices each week recording an advance of \$25 per ton over the previous week. Zinc ore prices the first week of the month were \$80 to \$85 per ton but rose the next week \$25 and continued to climb the following week until the highest price recorded was \$136 per ton. The highest price received by the producers was \$139.60 for premium ore. The last half of the month the demand for zinc ore was weaker than the first half, prices falling off \$15 to \$20 per ton on all grades recording a base range at the end of the month of \$80 to \$110 per ton. This very wide range was caused by the weakening of the spelter market causing the prime western spelter producers to buy lightly in this district of second grade ore, while the demand for first grade ore was good among the producers of high grade spelter. There was a total tonnage of zinc ore sold this month of 25,319 tons at an average price of \$105.17 per ton, the average tonnage sold by weeks was 6,330 tons per week, or 1,102 tons less than sold the previous month. This is accounted for by the fact that the bulk of the surplus ore held in the district was sold during the month of May and by the further fact that the buying the last half of the month was much below normal causing an increase in the surplus stocks which are now estimated at 4,150 tons, an increase of 470 tons over last month. The total tonnage sold for the first half year of 1915 is 143,442 tons at an average selling price of \$70.62, this is an increase of 13,940 tons and \$31.83 per ton covering the same period of 1914.

The calamine ore market was very strong breaking all previous price records, the lowest base price recorded this month was \$50 per ton and the highest was \$85 per ton. The tonnage sold this month was 2,097 tons

an average price of \$64.01 per ton. The total an average price of \$64.01 per ton, the total tonnage sold for the first half year was 11,234 tons at an average selling price of \$37.82 per ton, the total tonnage sold covering the same period 1914 was 8,909 tons at an average price of \$21.25 per ton, showing an increase for 1915 of 2,325 tons and \$16.57 per ton in price. The extremely high prices paid for this ore were directly responsible for this substantial increase, causing the producer of calamine ore to make every effort to increase production which has been done to the extent of about 200 tons per week and will undoubtedly continue to increase as long as present market conditions prevail.

The lead ore market for the month of June was much stronger than recorded the previous month, the base price for this ore the first week of the month was \$51 per ton but took a jump the next two weeks to \$80 per ton which was the highest price paid throughout the month. Very little ore was sold at this high figure as this price was only offered one day when the price dropped off to \$75 per ton and has since continued to decline closing the last week of the month at \$60 per ton. The total sales for the month were 3,826 tons at an average selling price of \$65.13 per ton, the average tonnage sold weekly being 956 tons, the total sales covering the first half year of 1915 are 21,374 tons at an average price of \$51.38, showing an increase of \$3.93 per ton and a decrease of 721 tons, covering the same period in 1914. The estimated surplus stocks of this ore in the bins of the producers are 825 tons. This decrease in production is due to the fact that lead ore is largely produced as a bi-product from the mining of zinc which has been the more desirable ore, bringing exceptionally high prices while the price of lead ore prior to the recent advance during the month of June has been very low which caused the mine operators to concentrate their efforts on the production of zinc ore.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, AUGUST, 1915.

NO. 8.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,

C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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Why Complete Demoralization Has Not Followed Present Unprecedented War.

If one had been told a year ago when war broke out with Germany and Austria, opposed to Servia, Russia, France and England and her colonies, that within a year there would be added to the contestants, Japan and Italy; that at this time there would be even indications of the remaining smaller European countries and possibly ourselves becoming involved; that in the year a war bill would have been accumulated which from the best estimates obtainable has reached

Killed 2,400,000,

Wounded 5,150,000,

Missing 1,800,000,

War loans 17 billion dollars.

War costs 25 billion dollars;

and that, more appalling still, the end of the war still seems farther off than when it broke out, what would have been his view as to what the financial and commercial conditions would be to-day?

The situation would have appeared unthinkable. The most optimistic mind could never have imagined anything like what we are seeing in the conditions to-day in the nations involved.

EDITORIAL.

All predictions of business disaster have been unfulfilled. Affairs in these countries are being carried on, and manufacturing activities increased and intensified by the necessity and realization that in no other way can there be any hope of victory.

It is true an awful loss in going on, by far the most valuable being the human life and disability equation. That loss cannot be replaced like the material loss of property, or like the loss of human effort transferred from lines of production to that of destruction. Why is it therefore that a year after this awful experience we find the warring countries involved in their present unexpected condition? We think the answer will be found in some of those fundamental truths that it takes a calamity like the present to revive and bring home to us.

1st.—How much greater we are dependent on **Mother Earth**,—seedtime and harvest—the fountain of all real wealth, than on human effort, trade, and manipulation. There has been in the past year an increase rather than decrease of what Nature has had to give the world.

2nd.—**Benefit of co-operation.** The entire population of the countries at war are working with and under the direction of the respective Governments, to produce and conserve everything not only necessary for the waging of the contest but for the sustenance of their country.

No Matter What the Expenditure is, a Country is no Poorer if it Spent at Home and Only Changes Hands.

3rd.—While enormous sums are being taken out of the pockets of the people by one hand, these sums are dis-

tributed by the other hand to pay for supplies, and except where spent in other countries is not a dead loss.

That Patriotism is a Tremendous Power and Carries Far-Reaching Effects When Called in Action.

4th.—The enormous sacrifices of all, and especially the rich, who from their substance and economy are giving so freely in fulfillment of the obligations they feel have fallen upon them. This we believe is of greater importance than is generally appreciated. And at the risk of being thought sentimental would add, that the greatest human power in this world is:

5th.—**The Power of the Will.** We see this carrying us through business propositions that otherwise would be impossible and overcoming and unsurmountably difficult. The entire will of the greater part of the civilized world is now centered on a proposition to fight this war to a finish, and the means and efforts will be forthcoming.

American Prosperity.

We prefer not to touch on the prosperity of our own country in the face of the awful disaster that is falling on almost all the rest of the world, but which to our mind in the way it is being met is an inspiring spectacle. If there are any doubts as to the condition of our own country, it requires only a glance at what is before our eyes to see that America was never getting richer so rapidly as we are today: never was there a more promising prospect of what awaits us in the future in trade and commerce.

A Year's Effect of the War on Metals.

(This Table Supplements the Article Under the Above Headline in Vol. 1, No. 1, 1915.)

	1914			1915			
	One month before war, July 1,	10 days after war, declared, Aug. 10,	3 mos. later, Nov. 1,	3 mos. later, Jan. 1,	8 mos. later, April 1,	10 mos. later, June 1,	a year's war, Aug. 1,
Copper—							
Lake	13.87	12.62	11.35	13.10	16.50	19.00	18.57
Electrolytic ...	13.55	12.45	11.12	12.85	15.80	18.75	18.12
Casting	13.35	12.25	11.05	12.75	15.12	17.50	17.00
Tin	21.15	65.00	32.00	33.25	48.50	58.00	35.00
Lead (St. Louis)	3.75	3.70	3.31	3.60	4.12	4.80	5.15
Spelter (St. Louis)	4.85	5.12	4.85	5.55	9.30	22.50	17.87
Antimony, (Chin. & Jap.)	5.50	17.50	13.75	13.25	21.25	34.75	34.75
Aluminum, (98 to 99%)	17.62	20.50	18.25	19.12	18.75	26.50	32.50

Extreme Fluctuations During the Past Year of War.

July 31, 1914 to August 1, 1915.

	High.	Low.	Average.
Copper—			
Lake	20.62	11.30	15.10
Electrolytic	20.50	11.10	14.86
Casting	19.62	11.00	14.37
Tin	65.00	28.50	38.84
Lead (St. Louis)	7.50	3.35	4.07
Spelter (St. Louis)	27.00	4.60	10.02
Antimony (Chinese and Japanese)	38.00	5.30	20.56
Aluminum (98 to 99%)	33.00	11.17	21.31

High, Low and Average Prices for the 10 Years Preceding Declaration of War.

	High.	Low.	Average.
Copper—			
Lake	26.25	12.12	15.55
Electrolytic	26.00	12.00	15.50
Casting	25.25	11.87	15.41
Tin	51.05	25.75	36.48
Lead (St. Louis)	6.05	3.45	4.55
Spelter (St. Louis)	7.50	4.00	5.64
Antimony (Chinese and Japanese)	24.12	6.00	18.52
Aluminum (98 to 99%)	28.00	18.50	22.75

* For seven years.

† For five years.

BUSINESS TRENDS.

THE STOCK MARKET.

The volume of stock transactions on the New York Stock Exchange during the month of July reached a total of 14,322,915 shares, against 1,116,567 shares in June and 7,828,038 shares in July, 1914. The par value of bonds sold during the past month amounted to \$54,312,000, as compared with \$57,825,000 in June and \$51,957,000 in July of last year. The aggregate of stock transactions for the seven months of 1915 is thus brought up to 76,396,980 shares, against 45,560,398 shares sold during the corresponding period of 1914. Bond sales for the first seven months of the year amounted to \$448,868,700, as compared with \$423,089,700 last year.

The heaviest sales of stock for one day in July were recorded on July 29, when 1,340,892 shares changed hands. Bond transactions also reached the maximum figure on that day, the sales amounting to \$3,678,000. The smallest volume of business in stocks was reported on July 6, when the total sales were only 223,101 shares. Bond transactions were lightest on July 26, amounting on that day to only \$1,373,500.

The daily average of stock sales during July was 550,881 shares, against 428,331 in June and 313,122 in July, 1914. The daily average of bond sales was \$2,088,923, as compared with \$2,224,038 the previous month and \$2,078,304 in July of last year.

Here are the total transactions in stocks for July and the first seven months during a series of years:

Shares of Stock

	Month of July.	From Jan. 1.
1915	14,070,763	76,396,980
1914	7,828,038	45,560,398
1913	5,149,883	51,009,941
1912	7,119,008	75,842,962
1911	5,661,550	59,734,421

Bonds, Par Value

The bond sales for July and the seven months compare with previous years as follows:

	Month of July.	From Jan. 1.
1915	\$54,213,000	\$448,089,700
1914	51,597,600	428,089,700
1913	34,607,600	317,701,600
1912	51,198,000	443,358,000
1911	63,444,000	529,244,500

A WONDERFUL YEAR IN FOREIGN TRADE.

The largest total of June exports ever recorded finished a fiscal year which has no counterpart in the past as regards the total volume of export trade, the aggregate of foreign trade as a whole, or the excess of exports over imports. Imports, it is true, were the smallest since 1912, but this, like the immense excess in exports, was due to the working out of war's effects upon the productive capacities of the European nations.

Our foreign trade for June and twelve months compares as follows:

	June:	1915	1914
Exports	\$268,601,599	\$157,072,044	
Imports	157,740,140	157,529,450	
Excess of exports	\$110,855,459	*\$457,406	
*Excess of imports.			

Twelve months ended May 31st:

	1915	1914
Exports ...	\$2,768,643,532	\$2,364,579,148
Imports	1,674,220,740	1,893,925,657
Ex. of exports.	\$1,094,422,792	\$470,653,491

RECORD JULY BANK CLEARINGS.

Clearing House exchanges during the month of July proved to be a high record for any corresponding month in any previous year. The total was \$14,819,864,870, an increase of 2.9 per cent over July, 1914. Primarily the gain is due to a heavy increase at New York, payments at that center having moved up 6.9 per cent, or \$514,928,947, over July last year, whereas clearings in the country outside of the metropolis decreased 1.4 per cent, from the heavy total recorded in July 1914. With one exception, that of April last, the grand total just given is the largest registered for any month since January, 1914. It shows an increase 5.7 per cent, over the figures for June of this year, while it discloses a gain of 14 per cent, over July 1913, and it exhibits a rise of 7 per cent over the corresponding month in 1912. The largest monthly clearings ever recorded were those of October 1913, when changes totalled \$17,146,370,736.

BUSINESS TRENDS.

NEW INCORPORATIONS LESS IN JULY.

Incorporations last month showed a falling off. For example, papers filed in the Eastern States for companies with a capital of \$1,000,000 or over represented a total of \$71,100,000, against \$181,247,100 in June. In July a year ago the incorporations involved \$68,700,000. The grand total of companies chartered with a capital of \$100,000 or more in all States, including those of the East, was \$132,675,000. This compares with \$230,859,000 in June. In July, 1914, the figures were \$148,161,500.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. ..	\$51,150,000	\$120,050,000	\$332,450,000
Feb. ..	53,950,000	51,575,000	191,500,000
Mar. ..	70,050,000	57,700,000	166,030,000
April ..	32,200,000	136,185,000	198,718,000
May ..	78,950,000	62,700,000	172,200,000
June ..	181,247,100	70,050,000	79,550,000
July ..	71,100,000	68,700,000	83,650,000
Total	\$538,647,100	\$566,960,000	\$1,244,098,000
Aug. ..		50,600,000	63,500,000
Sept. ..		54,800,000	42,750,000
Oct. ..		35,487,500	70,856,300
Nov. ..		81,650,000	77,800,000
Dec. ..		105,450,000	55,250,000
Total		\$894,947,500	\$1,534,254,300

JULY FAILURES DECREASE IN NUMBER.

Commercial failures last month, as summed up in Dun's "Review," were slightly less numerous than in June notwithstanding the fact that some increase in the country's business mortality is usual during July, owing to the strain involved by the semi-annual settlements. The aggregate liabilities, moreover, were only moderately in excess of the total for that period.

Thus, insolvencies, as reported to R. G. Dun & Co., numbered 1,739 and supplied an indebtedness of \$18,934,903, against 1,754

in June for \$18,313,118 and 1,707 for \$10,053,212 in May, the low point of the year in number of defaults. Hence, with this exception, there were fewer suspensions than in any previous month and the decrease as compared with January was less than 1,109, or almost 40 per cent.

Considerable expansion is shown in comparison with July, 1914, when 1,411 failed, but the margin of increase is steadily narrowing and it is significant that the latest figures show a smaller debt than the \$20,377,148 owed a year ago.

JULY PIG IRON OUTPUT VERY LARGE.

The country's July pig iron production, according to the "Iron Age," was 2,563,420 tons, or 82,691 tons a day, against 2,380,827 tons in June, or 79,361 tons a day. The steel companies are now close to their maximum pig-iron capacity. They made 68,895 tons a day in July, or 3,900 tons more than the daily average in June. In only four previous months—January, February, April, and May, 1913—was the production of steel works furnaces greater than last month's.

Sixteen more furnaces were in blast on August 1 than on July 1—a total of 234, with a daily capacity of 86,776 tons, against 218 furnaces and 80,411 tons a day. Thus production to-day is at the rate of 32,000,000 tons a year, against 18,000,000 tons January 1. The greatest year's total was 31,300,000 tons in 1913.

The daily average production of coke and anthracite pig iron in the United States 15 months since January, 1912, is given as follows by the "Iron Age":

	1912.	1913.	1914.	1915.
January	66,384	90,172	60,808	51,659
February	72,442	92,369	67,453	59,813
March	77,591	89,147	75,738	66,575
April	79,181	91,759	75,665	70,550
May	81,051	91,039	67,506	73,015
June	81,358	87,619	63,916	79,361
July	77,738	82,001	63,150	82,691
August	81,046	82,057	64,363	
September ..	82,128	83,531	62,753	
October	86,722	82,133	57,316	
November ..	87,697	74,453	50,611	
December ..	89,706	63,987	48,896	

A Year's Effect of War on Steel.

First It Killed An Incipient Improvement And Then Aided In Making The Steel Industry Completely Prosperous.

The American steel industry is accustomed to kaleidoscopic changes, while the greatest war in the world's history would naturally change the course of trade in spectacular fashion. Hence it is by no means surprising that the steel industry of the United States has passed through remarkable experiences in the past year, the first year of the European war. It was not a question at the outset whether the steel market would be affected; it was a question how it would be affected. Various opinions were entertained. We judge the future by the past, while we are continually forming opinions and then waiting to see how they work out. Hence a brief review of what has occurred in the steel industry during the first year of the war should be more interesting if we consider not only the things that occurred in commerce, but the opinions that were formed from time to time, and their correctness was or was not borne out by the actual developments.

First Impressions.

At the beginning of the war there were various opinions entertained. In the first fortnight of August, 1914, as a good period for comparison, these various views were held in one quarter or another:

(1) War prices are usually high prices, hence steel products should advance.

(2) Ferromanganese might become very scarce, hence sellers of steel should be very reserved about committing themselves for the future.

(3) The neutral and non-producing nations would have to come to the United States for iron and steel; from all the producing countries they had been importing, roughly speaking, about 10,000,000 tons a year, of which the United States had never contributed more than about one-fourth, at the outside, and an average of not over about one-fifth.

(4) Foreign holders of our railroad and other securities would dump them upon us, demoralizing all values and draining gold from the country, with the result that our industries would be prostrated.

These were mixed views, of course. Prices did, however, advance for a time.

That may or may not have been on account of the war. A discernible improvement had already started in the steel trade, in June and July, June seeing slightly lower prices, perhaps by reason of business developing that would encourage cuts, while in July prices tended to stiffen. Whether such advances as occurred in August were due to the breaking out of the war, or merely represented a continuance of the movement, can be no more than a matter of opinion. Pig iron did not participate in the movement, at any rate. It had been declining, and barely held steady in August. The movements are precisely and briefly depicted by the following statement of our composites:

	Pig iron.	Finished steel.
June 1, 1914.....	\$13.725	1.4825c
July 1	13.600	1.4675
August 1	13.500	1.5000
September 1	13.495	1.5725

A month of the war changed viewpoints very materially. It became clear that the neutral and consuming countries were prostrated and could not buy our steel, not even as much as they had been buying from us. The nations at war had not reached a realization of the fact that they would have to buy steel heavily in the United States. Everyone was convinced that our foreign held securities would be dumped upon us, and the outlook became more and more blue. By the end of October there was a perfect ecstasy of fear in business and financial circles. Orders for pig iron and steel grew lighter and lighter, and prices fell steadily.

The worst point in sentiment was reached towards the close of October. In November sentiment was reported as better, and in many quarters the improvement was attributed to Republican gains at the election, though it has since become patent to almost everyone that the historic name of the political party that may be in power, or likely to get into power, is a detail buried under the weight of the manifold, vital and complex problems that have arisen

for the American nation. On November 16th the new banking system went into effect, and greatly improved the financial situation.

Judged by reported sentiment in the steel trade, an improvement began early in November. In actual buying there was no improvement until rather late in December, and the buying was almost wholly for shipment after January 1st. In steel prices the lowest level was reached in December, advances beginning January 1st. In operations December was easily the poorest month.

Even in January, with conditions improving rather steadily, the outlook in a general sense was very poor. The percentage of existing steel making capacity employed in December was easily the lowest in the history of the steel trade, probably less than 35%, averaging the month as a whole, and the recovery that was visible might mean only a restoration of a normally stagnant condition, following an unprecedented stagnation. Prices had gotten down to the lowest level in modern steel times, a shade below the low point even of November, 1911, and with operations so light profits were far below the record low.

Thus while conditions were improved in January and February they were better only by comparison. The country always needs some steel, and after a period of such exceptional depression the increased buying might be only temporary. Up to March 1st, perhaps up to April 1st, the question in steel was whether the movement then in progress was destined to be a major or a minor movement, one that would really bring some measure of prosperity to the steel trade, or merely a false start, such as the steel industry often experiences during a period of prolonged depression.

War orders had then begun to appear, but they were not seriously regarded. They did not run into tonnage and it was obvious that no war demand could possibly carry the American steel industry if it did not have something like its normal domestic demand. The war requirements at most could be for certain descriptions of steel only, barb wire and large rounds for shrapnel being about all that was considered.

March, however, saw no decrease in the rate of improvement, and there began to be definite hopes that the steel industry was really passing to a period of moderate

prosperity.

The war demand both increased and broadened. Large rounds and wire products were called for to a greater extent, and rails and rolling stock began to appear as possible parts of the general war demand. At the same time the domestic demand broadened. The railroads, which had given no promise by their light buying of rails earlier in the year that they were to be counted upon at all, began to take an interest. There was a total of more than 20,000 freight cars bought in May, chiefly by the Pennsylvania. The June total was almost 30,000 cars, somewhat over two-thirds of the total being taken by the French and Russian governments, Russia taking 400 locomotives also. The demand for large rounds continued to increase, reaching stupendous proportions. To August 1st, or during the first year of the war, the total business in steel rounds placed with the steel mills, for direct export and for manufacture into shells for export, is estimated at 500,000 tons, the great bulk having been placed in the last four of the twelve months, while the business in sight is estimated at nearly one-half as large a tonnage.

In April and May, and to a limited extent in June, the popular impression was that such improvement as the steel trade had experienced was due simply to the war demand. This opinion has since been dispelled by consideration of the actual conditions. The war exerted injurious influences upon the American steel trade, by decreasing the exports of steel to neutral countries, and by discouraging new enterprises in the United States, requiring structural steel, etc., while its natural influence would be to discourage all initiative. The demand for war material could not possibly be sufficient to counteract these influences, and the really prosperous condition in the steel industry that became apparent to all in June and July must necessarily have had the support of a better general consumer demand in the United States.

General business in the United States has undoubtedly improved. This may be due to our heavy favorable balance in the foreign trade, to the demand for war material upon other industries than the steel industry, and to the operation of the new banking system. It affects the steel trade favorably, and thus in one limited sense

the present steel trade prosperity may be attributed largely to the war. The point is that the prosperity is not chiefly due to the direct buying of steel products for the war; that is not a sufficient tonnage in itself. As

to the war making business good in the United States, that is a short sighted view, for why should business not have become good if there had been no war? It was high time for an improvement.

A Year's Effect of War on Metals.

The first year of the greatest war in the history of the world, will long be remembered and looked back upon by coming generations and remembered by the trade, for its effect on metals. It was quite natural that metals should have been sensationally affected, not only because they enter so heavily into war munitions, but also because the nations involved were with the exception of America the principal producers, and overwhelmingly the largest consumers. Besides this, the two principal belligerents were leaders in everything financially and economically. In fact as we think over what has taken place, it is marvelous that the developments have not been even more sensational than they have been, because it has not only been a physical contest, but all the economic powers possessed by the respective countries, have been exerted to the defeat of their enemies, and in no commodities has the war been carried into business more than in metals. It being realized that metals are indispensable for the prosecution of modern warfare, and on the ability to command a full and adequate supply depended the fate of those engaged in the titanic struggle.

We in this issue present a chart showing the daily fluctuations of copper, tin, lead, and spelter, antimony and aluminum during the first year of the great war, and we are inclined to think it will be often referred to by our readers, showing as it does such unprecedented fluctuations. The small table given below emphasizes this:

	Aug. 1st, 1917		
	Highest	Lowest	1917
Electrolytic			
Copper, N. Y.	20.50	11.10	18.12
Spelter, Tin.			
New York	65.00	28.50	35.00
Ind. New York	7.50	3.35	5.15
Spelter,			
St. Louis	27.00	4.60	17.87

Antimony, N. Y.	38.00	5.50	34.75
Aluminum, N. Y.	33.00	17.37 1/2	32.50

The first year of the war may be divided into six distinct periods in the American metal trade, during which certain influences material and psychological, and at times of a very different character were predominant, with resultant effects on the temperament, activities and conduct of buyers and sellers. This was illustrated by the movement of prices, as the actual (represented by demand and lack of demand), and the mental (as represented by the fears and confidences), in these periods possessed and swayed the trade.

These periods we would tabulate as follows:

The Shock Period from August 1st to November 1st, when without warning the outbreak of war like a torpedo struck the business ship of the world, throwing her on her beam ends, stopping the financial engine, and creating panicky conditions that only America's previous position of being closely reefed and ready for trouble, and the remarkable ability shown by financial and commercial leaders the world over, in conjunction with all the help the various governments could afford, prevented chaos and complete disaster. For a while in metals all trading except for actual necessities stopped. Those who might have been tempted to exploit the situation were made powerless by the closing of all exchanges. The only attitude that could be employed was to keep cool and quiet, and sit tight, meanwhile taking all steps necessary as far as possible to limit production and obligations, until something approaching normal conditions was restored. The metal trade more than did its share in these necessary precautions, and to this may be attributed the fact that no panic in metals

occurred, with the single exception of Tin, for which there were special reasons as we shall mention later.

This period may be said to have lasted from outbreak of war until November 1st.

It was marked by a cutting down of production, in part as a financial necessity and precaution, extending to a drastic cut of nearly 50% in American **Copper** output, since it was evident that our largest customer, Germany, would be cut off, their average copper takings having been at the rate of 200,000 tons per year. In spite of this sensational curtailment of output, Electrolytic Copper declined in the period named from 13½ to 11¼.

Spelter which should have advanced heavily (as it did later), since the European supply was cut off to all countries except Germany and Austria, and therefore England and the allies would have to come to us for heavy supplies, only advanced 1c per lb. from 4.80c to 5.80c and at the end of the period was back again to where it was before the outbreak of the war.

Lead output was reduced, and the price was so low namely 3.80c, that this metal through the control of the Trust, after a slight decline, was kept virtually unchanged, in fact so remaining until nine months after the outbreak of war, when the market began to advance, the price doubling in June over the figure ruling when the war broke out, but declined sharply later.

Tin of which we do not produce a single pound that we consume, with the fears of supplies being unobtainable on outbreak of war, advanced from 31c to 65c, but as quickly fell back when it was seen our fears were groundless, and before the period we are discussing had passed, was down to 28½c or 2½c less than the price before the war commenced.

It thus can be seen that in this first period of three months of shock, these metals everything considered, had come through in good shape.

It was quite natural therefore that with normal business and financial conditions being again somewhat restored, that the metal trade should have entered into another period which we would call.

The Recovery of Confidence Period from November 1st to January 1st.

Three months of war had passed, the financial situation had not only not collapsed, but had given an astonishing ex-

hibition of adjustment to the extraordinary and unprecedented strain, the first shock of the outbreak of the war was over, and the metal trade began to consider that business affairs had not gone to rack and ruin, what did the war mean for metals. Of course only two things, dull conditions and reduction in demand for the ordinary pursuits of peace, but a heavy increase in demand for war munitions, and inasmuch as we had curtailed production during the shock period, metals should now go higher. At this time war munition orders into which metals enter so largely began to appear, and an advance set in which in this period advanced Copper from 11½c to 12½c, while the three other metals became steadier, slightly improving in price and tone. All fears of any financial or business panic had passed away, the business situation had been proved sound and safe in this country, foreign ammunition demand was increasing, and our balance of trade through heavy orders for our commodities from abroad demonstrated that whatever the loss the war was to occasion Europe, it meant a big customer for us at extremely profitable prices, and we entered what we call the legitimate advance period.

The Legitimate Advance period based on American fundamental conditions, which we would place from Jan. 1st to April 1st.

In this period there was with the exception of some rather sharp fluctuations in Tin and Spelter a steady advance.

Copper from 12½ to 15½

Spelter from 5.55 to 9

Tin from 33½ to 48½

The lead market also began to show firmer tendency and advanced slightly.

These advances were accompanied by a period of large buying and excellent business, with evidences that speculation was beginning to play a part, fostered by the heavy orders for ammunition, the remarkable foreign trade which we were doing and which was pulling our home trade out of the depression and rut into which the war had thrown us, and that the first year of war would show probably the extraordinary balance of trade to our credit of over one billion dollars, and we entered what we would term a

War Prosperity Period (April 1st to June 1st). As we said before business in metals had now reached a large volume,

and although all our curtailed output was being put into operation and in most cases increased to a new high record, the demand seemed to exceed the supply and prices advanced

Copper from 15.80 to 18.75
 Spelter from 9.30 to 22½
 Lead from 4.20 to 4.90

Tin for special reasons was running a course of its own, advancing from 48½c to 57½, but later declined at the end of this period to 48c.

The entire imagination of the trade was now getting excited and inflamed while speculation was getting rampant. Anything was believed as to the volume of war orders that were reported as being placed, and almost anything was believed as to what might happen to prices, and we entered what we call the

Absurdly Crazy Period in the month of June, long to be remembered, and probably never again to be equaled in the metal trade, in which

Lead advanced in 12 days from 4.50 to 7½c and collapsed to 5.40 in the succeeding week.

Spelter advanced from 22½c to 27c in a week, and collapsed to 17.75c in the succeeding two weeks, while **Copper** sharing in part with the excitement advanced from 18.75c to 20.50c declining to 19.50c, and **Tin** advanced from 37¾c to 42¾ declining to 39½c.

This month of June proved the climax of the war advances and the year closed with the last period which may be called

The Return to Sanity. From July 1st to August 1st during which the market has seen a steady decline.

Lead from 5.70 to 4.50
 Spelter from 22½ to 17½
 Copper from 19½ to 18½
 Tin from 39¼ to 35½

All the markets have felt the results of the June debauch, and have been gradually recovering from what took place then. Legitimate business has suffered. Many manufacturing trades have been demoralized, which it will take them some time to recover from. While fundamentally the country is sounder and more prosperous than ever, with a record crop imminent, finances easy and sound, America getting

richer every day and war orders especially for munitions requiring metals as large as ever, still the metal trade is now occupying the stool of repentance, and suffering from the headache that follows excess and excitement. Pessimism has taken the place of crazy optimism. The sense of proportion that seemed entirely lost during June, is now being recovered, and with it the realization that we have increased our output of Spelter, Copper and Lead beyond a point which justifies present prices, even after the reaction we have had, and that in these metals, especially spelter, further declines must take place before they can be said to be on a safe legitimate basis.

It is also well not to forget that we are still at high prices, viz:

	Opening of war.	Aug. 1, 1915.	Average for past 15 years.
Spelter,			
f.o.b. E. St. Louis	4.85	17.87½	5.30
Lead,			
f.o.b. New York	3.90	5.15	4.49
Electro Copper,			
f.o.b. New York	12.87½	18.12½	15.03
Straits Tin,			
f.o.b. New York	33.50	35.00	34.17

We have not discussed **Antimony** as it has been subject to special conditions that remove it from the ordinary, namely an embargo on supplies from England and no shipment from the continent making us dependent entirely on China and Japan, and on an extraordinary demand for war purposes. These conditions advanced prices from 5½c when war opened to 38c, the price Aug. 1st, 1915 being around 34½c.

Aluminum not entering into war munitions to any extent remained at around 18½ to 20c until April when market began to advance rapidly to 35½ in early May. 37½c in June, since declining to 32½c at which the first year of war ends. The using up of foreign stocks we had here, and the inability to get any foreign supplies, together with an improvement in the American demand explains the advance in past three months. Present prices are also the result of the market being now in control of the single American producer.

SUMMARY.

Looking back over the year, certain facts stand out:

1st: that all that has been predicted concerning the necessity of metals in war has been confirmed in the enormous demand for their use in munitions.

2nd: That ordinary consumption is bound to suffer in war, and no matter how heavy the requirements for war purposes and which from their very nature create excited market, they do not in the volume offset the falling off in the consumption for ordinary peaceful purposes, and that but for the drastic curtailment of output early in the war, many metal prices would never have reached the points they did.

3rd: Our helpless condition as regards Tin of which metal we consume about one half per cent of the entire world's consumption, and virtually do not produce a pound. Also this metal being produced almost entirely in British possessions, controlled by a single foreign country, with whom if we were not at peace, we would have to shut down every industry using this metal. As it is the British Government has put an embargo on Tin, and while they permit us to get all we need, it is only on guarantees being furnished that the metal is used for our industrial purposes and not exported. All arrivals are consigned to the British Consul.

That lack of confidence at the opening of the war, should have been followed by wild excitement and over confidence was quite natural, when it is remembered we were in a period such as the world has never known before, for which there were no precedents to guide us, and no prophet bold enough to predict the future. Past experiences were realized as worth nothing, and all one could do, was to try and grasp and deal with each new situation as

it came into sight. No wonder the year will be looked back with mingled feelings of congratulation and disappointment. No wonder many mistakes of judgment have been made, and the looking back is today a regretful prospect to many, while those who have come out with large profits, if thoroughly honest, must credit it to their good luck to a great extent. Of course it is impossible with such advances as we have had for the great bulk of the trade not to have made money, and in some cases a great deal, but the declines that have followed must have depreciated these profits enormously, and the end no one can foresee. The war still lasts and is likely to continue for a long time. The situation and developments in the field are to-day more complex than at any time, and the future is shrouded in uncertainty. Perhaps the extraordinary and sensational movement shown in the past year in the chart that accompanies this issue of the DIGEST, may in the second year of war be exceeded. Who knows? It is a case of "nothing as usual." The trade has gone through a year to rack and tax the strongest and most equally poised business man, still greater demands may be made on our abilities, judgement and stamina.

The safest compass we think that can be employed, even at the risk of losing great opportunities for profit, is great conservatism, at the same time keeping unbounded confidence in our country, and the new and commanding situation that she is to occupy in the world of trade and finances, by reason of the upheaval and destruction of the present war.

In this, metals, and their products will figure probably more largely than any other commodity. The opportunity is being thrown open to us. Will we grasp it and prove competent to appropriate it?

THE STEEL INDUSTRY PROSPEROUS.

Steel Becomes Scarce—Pig Iron Advancing—Long Period of Activity Regarded Certain.

A month ago, under the caption "Prosperity for Steel Industry Assured" we reviewed the progress of the improvement in the steel market, concluding that the upward march was to be continued, constituting a major movement in the steel market, that the productive resources of the steel industry would be taxed within about three months, and that even when such a point should be reached the full consumptive demand of the country would not have been fully expressed.

Developments in July have fully confirmed what was then said of conditions existing at the time, while they have gone very far towards bringing a realization of the predictions made. At the beginning of August the steel mills are operating substantially at their capacity, prices are advancing all along the line and demand, in the midst of the dog days, is such as to indicate a great excess of demand over capacity in succeeding months.

The recovery of the steel trade is now complete. There is no chance of a recession in the near future, and no likelihood of any until some time after the war is ended. The demand for steel for war purposes shows indications of increasing rather than decreasing, the export demand from neutral countries must inevitably increase, and as the end of the war approaches investment funds in the United States should be so loosened as to create a fresh additional demand.

The advance in steel prices since the low points of last December are approximately as follows per ton:

Billets and sheet bars .. .	\$5 00
Wire rods .. .	2.00
Plates .. .	4.00
Shapes .. .	5.00
Steel bars .. .	5.00
Wire and nails .. .	2.00
Barb wire .. .	4 00
Steel pipe .. .	4.00
Cold rolled shafting .. .	5.00

Pig Iron Advancing.

A remarkable feature of the general iron trade during seven months to July 1st during which steel was becoming more and

more active, with prices advancing, was that coke, scrap and pig iron were not in the procession. Scrap had stiffened in January, only to fall back again. In July scrap stiffened again, and more sharply. Coke, however, has not experienced a marked advance as yet, and one must fall back on the theory that the rapid turning to by-product coking, with the necessary increase in total coke making capacity, is preventing a rise in coke.

In pig iron, with various minor fluctuations, the average price of various descriptions of pig iron in all important markets was substantially the same at the close of June as at the beginning of the year. There had been a year and a half of relatively low pig iron prices, and eight months of extremely low prices. The average price in those eight months, November to June inclusive, was substantially as low as the low point reached in 1904, then only for a short time, and otherwise the lowest level since early in 1899.

July witnessed a sharp upturn in pig iron, raising the general average by about 50 cents a ton, with clear promise of much sharper advances in August and succeeding months. The pig iron situation has been complex and difficult to analyze, but in the retrospect it appears that demand did increase during those eight months, sufficiently to cause decided price advances if production had remained stationary, but that idle furnaces were brought in from time to time to reap expected advances which the expanding production forestalled. Of course in a market it is to be expected that production will increase as demand expands, but the belief at the beginning of the year was that there were practically no idle furnaces having costs such as to enable them to operate at a profit with the going prices. In most trade circles the fact that many idle furnaces did come into blast is not taken to mean that they were able to realize profits at the going prices. Rather the inference is that the owners were so convinced that higher prices were in prospect that they endeavored to anticipate the profits promised by

such advances, by blowing in at once, and thus they forestalled by their action the advances by which they had hoped to profit, leaving it that the average profits in pig iron manufacture in June were if anything less than the average profits in November or December.

The pig iron market has now declared itself, however, the somewhat sudden advances that have occurred in July indicate that the furnaces feel strong in their position, as well they may since they are probably practically sold up until late in the year. Such increases in demand as may occur will necessitate the blowing in of additional furnaces. An increase is to be expected in demand for foundry iron, but still greater increases are fully expected in Bessemer and Basic. Even some of the large steel interests are expected to be steady buyers in the merchant market, as they have already reached the limit of production in pig iron, and may still be able to speed up their steel works so as to consume more pig iron. Then, for the more distant future, the steel works furnaces now operating will in some cases have to blow out for relining and other repairs. It is traditional that in the first twelvemonth or so of a heavy production campaign the steel works furnaces produce a larger output than they can make later.

The Industry's Future.

The present demand for steel appears clearly to be of a more substantial character than that of 1909 or 1912, marking the two major movements the steel market has experienced since its great three year period of prosperity which came to so sudden an end late in 1907. In the retrospect the

ferred buying and sharp price advances of 1909 and 1912 appear to have been simply the time the result of the other. The buying was partly speculative, against expected advances, while the advances themselves found themselves able to make more possible by reason of the active buying. Coming to this view is lent by the fact that the trade was so long recovering after these movements. The 1909 movement lasted approximately six months, while fully two years were then spent in liquidation. The 1912 advance was of about the same length, while the period of readjustment was much longer.

The present demand for steel promises to be much more prolonged. The steel trade appears to have entered a period of years of prosperity, rather than a period of a few months or a single year. Making for a prolongation of the period is the fact that new construction work promises to be difficult and expensive, while there is less disposition to invest capital than formerly, and thus the total demand may be spread over a longer period of time than usual. It is quite within the possibilities, as they now appear, for the steel industry to find itself able to operate at its capacity for say three years, and possibly even a long time. In the circumstances the only definite cause that can be seen as likely to end the period of activity is a possible depression following the conclusion of the war. There may be no such depression at all, but if there is one it is not improbable that it will occur some time after the war ends; the immediate effect of the war's termination may easily be a short boom in business generally.

RAILROAD EARNINGS.

Railroad earnings per mile of road, of roads having annual operating revenues above \$1,000,000, this being about 229,000 miles or about 90% of the total steam railway mileage; compiled by the Bureau of Railway Economics from duplicates of reports furnished the Interstate Commerce Commission.

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
November	1,180	884	337	1,023	732	292
December	1,116	821	296	990	728	262
January	1,021	795	226	936	716	220
February	914	746	168	897	678	219
March	1,091	801	290	1,012	720	292
April	1,038	782	256	1,010	722	288
May	1,047	800	247	1,040	732	308

MANGANESE MOVEMENTS.

A Serious Situation for American Steel Manufacturers.

The ferromanganese situation and outlook was complicated by developments in July, there being three important developments, one favorable and two unfavorable, as follows:

(1) Manganese ore imports in June proved to be exceptionally large for the United States and larger for the United Kingdom than those of any month since January. United States imports (not official) are given at 31,000 tons for June, against 27,137 tons altogether in the preceding five months of the year. British imports in June were 27,229 tons, against only 5,278 tons in May and an average of 21,500 tons a month in the five months ending May.

(2) It became clear that the steel works of the United States would, by reason of steel demand, desire to operate at capacity for months if not years, and thus supplies of manganese ore and ferromanganese that might have been considered adequate, from the viewpoint of a few months earlier, became entirely inadequate.

The British Government issued an order requiring

That ferromanganese producers maintain a stock of manganese ore equivalent to three months consumption.

That ferromanganese producers maintain a stock of ferromanganese equal to three months production.

That ferromanganese consumers maintain a stock of ferromanganese equal to three months consumption.

It is not known in the United States what stocks of manganese ore or ferromanganese are in the United Kingdom, hence it is not known positively that exports of ferromanganese to the United States will have to be restricted in order to comply with the order of the British government, but naturally there are strong suspicions that the supplies are inadequate to permit compliance with the order and still export the quantities of ferromanganese the United States will require.

We are not in position to judge precisely how serious the manganese situation is, with respect to the operation of American

steel works, but we have gathered from various sources all the statistics available to date, statistics that are practically complete, and these statistics should be studied carefully by those interested.

British Imports and Exports.

The British statistics cover imports of manganese ore, and exports of "spiegeleisen, ferromanganese and ferrosilicon". It is to be presumed that the latter designation covers little but ferromanganese, for the British exports are chiefly to the United States, and we have no occasion to import any spiegeleisen, while our ferrosilicon imports are very small, relative to ferromanganese. The figures are as follows, referring to gross tons:

	Manganese ore imports	Exports of ferromanganese, etc
1912 . . .	357,738	162,352
1913 . . .	601,177	178,919
1914 . . .	479,435	111,789
1915—		
January . . .	39,413	3,793
February . . .	25,634	2,208
March . . .	21,828	2,717
April . . .	15,414	5,463
May . . .	5,278	14,109
June . . .	27,229	12,111
Six months . . .	134,796	40,401

United States Statistics.

The accompanying table, for calendar years, gives the imports into the United States of manganese ore and of ferromanganese, with the average value of the latter, at the foreign port, together with the production of ferromanganese in the United States, and the production plus imports.

The statistics for the present year are naturally less complete. The United States imports of manganese ore, June being unofficial, are as follows:

January	9,849
February	27
March	398
April	218
May	16,645
June	31,000
Six months	58,137

C. B. Morgan, secretary of the Noble Electric Steel Company, San Francisco, in a circular dated July 29th gives the ferromanganese imports of the United States in the first half of 1915 at 20,542 tons, stating that the information was obtained from the collectors of customs at the ports of New York, Philadelphia, Baltimore and New Orleans.

The presumption is that the larger manganese ore imports in May and June were due to a large increase in the Brazilian supply, operations in that country having been speeded up because the Indian and Russian supplies have been largely if not wholly shut off. The United States Geological Survey in an article released for

publication July 19th gives data as to the imports of manganese ore in 1913 from Russia, India and Brazil, and from the references made we compile the following table of imports of manganese ore into the United States in calendar years:

	1913	1914
Russia	124,337	52,681
India	141,587	103,583
Brazil	70,200	113,924
Other countries	8,966	13,106
Total	345,090	283,294

The figures for "other countries" are obtained by subtracting the Russian, Indian and Brazilian ore from the total imports as reported by the Department of Commerce.

Ferromanganese Imports and Production.

Ferromanganese, 80 per cent, gross tons; imports of manganese ore and oxide are general imports; of ferromanganese, imports for consumption; ferromanganese average value per ton is at foreign shipping port, no freight or duty.

	Manganese ore imports	Ferromanganese imports	Average values.	Ferromanganese production.	Production plus imports
1901	165,722	20,750	\$41.07	59,639	80,389
1902	235,576	50,388	36.08	44,526	94,914
1903	146,056	41,518	40.94	35,961	77,479
1904	108,510	21,814	32.41	57,076	78,890
1905	257,033	52,841	35.67	62,186	115,027
1906	221,260	84,359	58.72	55,520	130,870
1907	209,021	87,400	61.27	55,918	143,318
1908	178,203	44,624	41.70	40,642	85,266
1909	212,765	88,934	38.10	82,209	171,143
1910	242,348	114,278	37.99	71,376	185,654
1911	176,852	80,263	37.50	74,482	154,745
1912	300,661	60,137	39.41	125,378	224,515
1913	345,090	128,070	44.37	110,495	247,565
1914	283,294	82,217	41.33	106,083	188,300

Manganese ore production decreased from the maximum of 34,524 tons in 1887, of which 1,000 tons was Virginian, to 1,661 tons in 1913. Production of spiegeleisen declined from the maximum of 232,126 tons in 1907 to 110,338 tons in 1913. Imports of spiegeleisen declined from the maximum of 127,016 tons in 1903 to 1,045 tons in 1912.

EFFECT OF A GREAT RISE IN WAGES AND PRICES FEARED.

The National City Bank in its August circular letter discussing the growing volume of war order business that is being taken on by American corporations, says it is evident that the industrial capacity of the country is being engaged to a degree that, while helpful now, may prove embarrassing when the war business comes to an end.

"The reports of large profits to be realized upon these contracts are calculated to make trouble with labor, which is awake to any opportunity to improve its position," says the circular. "It may be that the exigency which occasions these orders makes them unusually profitable, but any important change in wages is likely to affect not only war business, but all business in the same lines, and it would be unfortunate for the country, wage earners with others, if the general level of costs in this country was raised to such an extent as to put us at a disadvantage in production when the war is over. There will be a general readjustment when international competition begins in earnest again, and everybody will be obliged to take account of world conditions."

Trade Revival at Zenith.

"The industrial revival has now reached the stage where, with the additional impetus that may be expected from the marketing of a good crop, it should include nearly all lines, and assure a satisfactory state of general trade this fall. In some lines of production, particularly in branches of the steel industry, the point has been touched where more capacity is wanted, and the stimulus of orders for additional plant equipment is felt."

The bank circular says it would be a fortunate thing if knowledge of the destruction and waste going on in Europe would prompt the people of other countries, including the United States, to make a study of practical economy, and its benefits not only to the individual in saving something for a rainy day, but to society as a whole in providing capital for industrial advancement.

"In these days of growing social consciousness perhaps not enough emphasis is laid upon the last named results of saving. No great undertaking, the purpose of which is to increase the supply of articles

of common consumption, can be carried out without capital, and capital is provided by savings. If the war has checked the progress of the world as we know it has, savings, wherever made, will help to counteract the effects.

More Savings Urged.

"The people of this country are far more able than any other people to increase their savings, first, because their income is always, much larger, and again, because they are now suffering less from the war than any other people. This country, therefore, has it in its power to do more than any other to repair the ravages and make good the losses of the war."

IMMIGRATION STATISTICS.

Years mentioned refer to fiscal years ended June 30th. Aliens admitted, both immigrant and non-immigrant, and aliens departed, both emigrant and non-emigrant, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1912 ..	1,017,155	615,292	+ 401,863
1913 ..	1,427,227	611,924	+ 815,303
1914	1,403,081	633,805	+ 769,276
July, 1914 ..	72,015	54,885	+ 17,130
August	51,231	54,112	- 2,881
September ..	44,624	34,557	+ 9,867
October	45,241	39,410	+ 5,831
November	35,325	40,748	- 5,423
December	27,458	12,525	+ 15,067
January, 1915	20,684	31,556	- 10,872
February	18,704	14,188	+ 4,516
March	26,335	15,167	+ 11,168
April	31,765	17,670	+ 14,095
May	32,363	17,624	+ 14,739
June	28,499	21,532	+ 6,967
Year 1915 ..	434,244	384,174	+ 50,070

United States citizens arrived and departed, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1913	286,604	347,702	- 61,098
1914	286,586	368,797	- 82,211
1915	239,579	172,412	+ 67,167

Net change in population caused by the movement of both aliens and citizens: 1913, +754,205; 1914, +687,065; 1915, +117,237.

THE CASE OF SPELTER.

That the enormous rise in the price of spelter should have attracted attention and set afloat many wild rumors was inevitable, and during the recent lull in the trade, producers and consumers alike have been making careful inventory of the situation. For the benefit of our readers, we beg to summarize same as follows: The production was 1,100,000 tons per annum prior to the outbreak of the war. Of this almost exactly one-half, viz: 554,000 tons was produced in Germany, Belgium and Austria. Of this production of 554,000 tons these three countries consumed within their own boundaries 387,000 tons and exported to the rest of the world 167,000 tons. It is these 167,000 tons heretofore exported to Germany, Belgium and Austria which has had to be supplied by the rest of the world,—chiefly America. When it first became apparent that this large tonnage would during the duration of the war be subtracted from supplies of the world outside of Germany, Belgium and Austria, fear of a corner seized the market. An actual corner has never really existed and does not exist now, but under the apprehension that it would occur, buyers and especially those with war contracts rushed into the market and bid for the metal regardless of price.

Last year's production of spelter in America was 350,000 tons but the capacity of plants then in existence was something like 450,000 tons.

That no larger production was made was owing to conditions then surrounding the industry with which the trade is familiar, and due to which a large part of the capacity was inactive. Since last year, plants already constructed or now under construction and which will be operating before the close of the year have expanded this capacity more than one-third so that it is no exaggeration to say that we are now in shape to produce at least 600,000 tons of metal per annum. Production at the present moment is running at the rate of nearly 550,000 tons per annum and before the close of the year retorts sufficient to produce an additional 100,000 tons or possibly more will be in commission.

At the very minimum we have taken care of the deficit caused by the cessation of exports from Germany, Belgium and Austria.

No analysis of the situation would be complete without discussing the point whether or not consumption is larger or smaller than before the war. For fine grades used to make brass, demand is undoubtedly larger, but for ordinary grades used in galvanizing, the consumption has been at least cut in half. Requirements for ordinary grades was at least 60% of the whole, or in the United States alone about 200,000 tons per annum. A cessation of activity along this line releases at least 100,000 tons per annum which by re-distillation or other refining processes can be brought up to the necessary grade for brass making. The total tonnage required is probably not larger, but smaller, than prior to the outbreak of hostilities. This is shown by our exports of spelter which for the eight months ended with April has run at the rate of 10,000 tons per month or 120,000 tons per annum and are still running at that rate.

To capitulate, we have in this country a consumption for galvanizing at least 100,000 tons less than normal, and a production at least 200,000 tons greater. This would give us a net surplus for the purpose of making munitions at home and abroad of 300,000 tons, which is nearly double the deficit occasioned by the war.

While we have no desire to enter into the realm of prophecy, and while freely admitting that the future may bring forth many unexpected and unprecedented developments, we have no hesitation in going on record to the effect that it is only

a matter of time and a very short time at that, before an equilibrium between supply and demand will be re-established. In fact it is already established.

When the war is over and European conditions have become normal, this country will find itself with two or three times the smelting capacity required. There will ensue a return to former conditions of keen competition when production was conducted at a loss.

The U. S. Steel Corporation is building two zinc smelters, both begun this year, one at Donora, Pa., already well on towards completion and expected to be in operation by the first of November, and

one at Gary, Ind., expected to be in operation by January 1st. These two plants will have a production of 50,000 tons per annum which, together with its present capacity to produce, will practically take the corporation out of the market as a

buyer of spelter. The Steel Corporation has heretofore taken about one quarter of the country's production, and when it is in a position to supply itself a condition will be produced in the zinc market which thoughtful members of the trade look forward to with considerable apprehension.

TOPICAL TALKS ON IRON.

XXVIII. How Much Iron and Steel is There in the United States?

Up to the beginning of 1915 the United States produced about 525,000,000 gross tons of pig iron. How much iron and steel have we now?

First one must consider imports and exports. We have imported a total of between 40,000,000 and 50,000,000 tons of scrap, pig iron and iron and steel products. We are making as close an estimate as possible, but as accurate statistics of the weight of material imported only begin with 1871 the total can be determined only within a few million tons. In 1872 we imported 1,183,066 gross tons of all material that was reported by weight. In succeeding years the imports dropped, because of the industrial depression, but in 1880 they rose to the record of all time, 1,886,019 tons.

Our iron and steel exports in gross tons did not run into six figures until 1906, or into seven figures until 1900, and as the movement is so relatively recent one can approximate the total quite closely. Making allowance for some iron and steel exported that was not returned by weight we have a total, to the beginning of 1915, of about 25,000,000 tons.

Thus we have imported about 20,000,000 tons more than we have exported, and allowing for losses in making the more finished products, the pig iron involved would be about 25,000,000 tons, which added to the 525,000,000 tons produced would make 550,000,000 tons of pig iron to be accounted for to the beginning of this year.

It is interesting but elusive subject, that of tracing iron and steel products to their point of ultimate consumption and endeavoring to determine how much is irretrievably lost, how much remains in employment and how much comes back to be reworked. One may say it is difficult to determine what became of the material long

ago, but there is almost equal difficulty with the present. A modern hotel in New York, only seven years old, is to be torn down, and with 2,000 tons of structural steel in it. One observes the odds and ends in a scrap yard and then wonders whether all or only a few per cent of the forms of iron and steel there represented are gathered together again.

Rust, of course, plays an important part, but it is obvious that only a small percentage of the total finished product of a year will eventually rust entirely away. A considerable quantity of material is lost because it does not pay to gather it up, but that, too, is no very large percentage of a year's production. A large quantity of material, of course is reworked, probably a larger quantity than would be assumed at first glance, for what occurs to one's mind is the rerolling of rails, etc., the remelting of iron and steel in the open-hearth steel furnace and the working up of various forms of scrap in the rolling mill. Apart from such forms of reworking, however, there is the very large use of scrap in the iron foundry. The iron foundry is almost ubiquitous, and always has been. In the case of many foundries, there has been a tendency of the foundry to seek the scrap, for where scrap originates it is cheap, while there is likely to be a demand for castings. Although we may be somewhat careless about gathering up bits of old iron and steel now, people were not so careless in the past. The labor was much cheaper and the material was much more expensive. Probably less material has been lost, in the history of the country, than many would be disposed to imagine.

In the matter of iron and steel rusting away or being otherwise lost, a very im-

portant factor must be taken into account. While we have made 525,000,000 tons of pig iron altogether, we made 250,790,868 tons of it merely in the last ten years, ending 1914, very nearly one-half. In the past 20 years we have made 386,000,000 tons, or nearly 74% of the grand total. Now we know, first, that there is in service to-day quite a considerable tonnage of iron and steel that was put in its present form more than 20 years ago, and second that there is in service a very considerable tonnage of iron and steel that has been produced in the past 20 years, but from material that had previously gone through a period of use and had then been reworked. Thus there are two classes of material in service to-day that represent pig iron produced more than 20 years ago. The comparison of one-fourth of the metallic iron produced more than 20 years ago and three-fourths produced in the past 20 years is not altogether accurate, of course, because our heavy imports occurred more than 20 years ago, and our heavy exports have been within less than 20 years past, making allowance for this fact we find that the deliveries to consumers in the United States have been about one-third the total more than 20 years ago and about two-thirds the total during the past 20 years.

There are slight losses even in converting pig iron into iron castings, and there are heavier losses in converting pig iron into finished steel. The scrap produced in the manufacturing processes is utilized, but the scale goes through the blast furnace, and the pig iron resulting is figured afresh. Scale is thus an absolute loss from the pig iron production, as officially reported, and there is also a loss of more than 5% in the carbon and silicon removed from pig iron in making steel. Averaging up all the losses and taking account of some minor accounts that it would be tiresome to mention, there is good reason to believe that with 525,000,000 tons of pig iron produced in the United States there has been

more than 415,000,000 tons of product available for ultimate consumption, and including the excess of imports over exports the total available for domestic consumers must have been in the neighborhood of 500,000,000 gross tons. One-third of this supply was furnished more than 20 years ago and two-thirds of it within the past 20 years.

The writer's guess is that of the 500,000,000 gross tons of merchandise produced here survives at this moment, in useful employment, not rusted away or abandoned, is not worth gathering, fully 400,000,000 gross tons. The fact that in our use of iron we have such a large fixed amount is one of the most important influences in making the market demand from time to time so invulnerable. The conditions resemble those of the real estate market rather than those of the wheat market. Our consumption of wheat from year to year varies but slightly, hence the total sales of wheat are much the same in one year as in another. In real estate the activity fluctuates very violently. Most everyone lives in a house, but it is only occasionally that one makes an addition to his house, or moves out of a small one into a large one.

The activities of men that are based up on the employment of iron and steel would not cease if no iron were produced for a twelvemonth. The bridges, hotels, office buildings, railroads and machinery could still be used. Some of the factories would begin running down, but only very slowly. The direct effect of the cessation of production would be that there would be no expansion. Deprived of food, a man starves, while his house wears out but slowly.

Our little talk this month started out with the question "How much have we got?" and an effort has been made to answer the question 100,000,000 tons. Another question naturally beds up, "Where is it?" That we shall make an effort to answer in part next month.

IRON AND STEEL.

THE SITUATION.

Substantially all the open-hearth steel making capacity of the country is engaged, and probably more than 80% of the Bessemer capacity. There is a distinct shortage of open-hearth steel, which mills that make both Bessemer and open-hearth have been endeavoring to correct as far as possible by securing the consent of buyers to a substitution of Bessemer steel for open-hearth, in both finished and unfinished material. It may be estimated that more than 90% of the steel making capacity is engaged. The actual tonnage output is not 90% of the normal capacity, however, for output per unit is temporarily curtailed by the weather and those units that have been but recently started in operation have not yet reached the full measure of their production. Steel ingots are being produced at the rate, probably, of about 30,000,000 tons a year, while in October, when weather conditions are always favorable, the steel industry may be able to produce ingots at the rate of nearly 40,000,000 tons a year.

The steel mills are behind in the delivery of finished steel in many instances, from two to six months in the case of steel bars of various sections, and from four to six weeks in the case of structural shapes and plates.

Steel prices are very firmly maintained and are in general showing an advancing tendency. On an average, finished steel products are \$3.60 per net ton higher than last December, the low point.

Pig iron is being produced at the rate of 31,000,000 tons a year, or at substantially the best rate ever maintained for a year, and pig iron prices are advancing sharply.

The July Movement.

July saw the steel mills really approach closely to their capacity. In preceding months production had been increasing steadily, but was sufficiently under the capacity to avoid causing any excitement in the market. July, with a further increase in the actual consumptive demand and some decreases in outputs in individual plants on account of the weather, found mills tending to fall behind in deliveries and on this account and by reason of increased confidence in the future, buyers began to specify still more heavily on contracts, thus creat-

ing a strong and active market. The movement, however, was in specifications against contracts rather than in strictly new buying. Towards the close of July the volume of new buying became relatively light. Those who had been uncertain whether the steel industry could really be placed under buying pressure during the war became convinced that it could be and in fact was.

Pig iron came to life early in July and in the closing days of the month started upon what promises to be a sensational advance, a moderate volume of demand coming into a market already fairly well sold out.

Export Demand.

May exports of tonnage items in iron and steel totaled 263,649 gross tons, showing a gain of 40,000 tons over April and making May the best month since August, 1912, while the May exports were three times those of last August, the first month of the war. There is reason to assume that exports have continued to increase, so as to exceed 300,000 tons in July and August. Much, however, depends upon the freight situation. At the end of May there was a large tonnage of steel on dock awaiting vessels.

The indirect export business in steel is reaching much larger proportions, covering steel that is manufactured in this country and finds its way abroad in motor cars, railway rolling stock, ammunition, etc. Steel now being made for such indicate exports probably amounts, at a rough guess to more than 150,000 tons a month, perhaps to more than 200,000 tons a month. The maximum of direct exports of iron and steel, as returned by weight, was 2,948,466 gross tons, in 1912. At that time the indirect exports were relatively light, certainly not enough to bring the total much if any above 3,500,000 tons, whereas it may be seen that at the present time the iron and steel made for export, direct and indirect, is running at the rate of 4,000,000 to 5,000,000 tons a year, with possibilities of further increases in the war demand, and the practical certainty that as time passes the neutral countries, which have hitherto been light buyers, will eventually have to patronize the United States very extensively.

Steel Prices.

July witnessed fairly general advances in

IRON AND STEEL.

steel prices. Billets and sheet bars at Youngstown advanced by \$2 to \$3 a ton, while in the Philadelphia market the advance was fully \$7.50. Pittsburgh and Youngstown quotations have become practically nominal.

At the end of June the large mills withdrew their price of 1.20c on bars, plates and shapes for prompt shipment, falling back upon the 1.25c quotation they had been making for third quarter. There remained small plate mills quoting 1.20c and occasionally less. About the middle of the month the large mills began to quote 1.30c on bars, plates and shapes, and gradually this is becoming the market. On bars it became well established about July 20th and at the beginning of August it was fairly well established on shapes, while plates lagged at 1.25c and occasionally a lower figure.

Under date of June 30th the American

Steel & Wire Company reaffirmed its prices of \$1.60 on nails and \$1.40 on plain wire, evidently for the purpose of dissipating the idea that the shading which had reached \$1 a ton would develop farther. At the same time it advanced barb wire \$2 a ton above its former official quotations, making painted barb wire 1.70c and galvanized 2.50c. For a short time nail and wire contracts were made at the former concession, but the whole market soon firmed up to the nominal basis, \$1.60 for nails, 1.70c for painted barb wire, etc.

Steel boiler tubes were advanced one point or \$2 a ton on July 16th, following a similar advance on June 17th.

The black sheet market had yielded in June from the 1.80c quotation which had characterized it since the decline of 1914 from a higher level, and at the close of June the market was barely quotable at above 1.70c, this virtually representing a

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

Prices are delivered											
— No. 2 fdy —											
Bessemer, Basic, No. 2 fdy, Basic No. 2K fdy, Cleve-				Chi-				Birm-		Ferro-	Fur-
— Valley —				Phila.		Phila		cago.	ingham.	mangan-	nace
				Phila.	Phila	Buffalo.	land.			ese.*	coket†
1914—											
Jan. .	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	44.42	1.88
Feb. .	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May .	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June .	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July .	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00†	1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70
Oct. .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65
Nov. .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60
Dec. .	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60
Year .	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80	1.72
1915—											
Jan. .	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55
Feb. .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55
Mar. .	13.60	12.50	12.75	13.50	14.35	12.74	13.25	13.39	9.42	78.00	1.53
April .	13.60	12.50	12.75	13.40	14.05	12.69	13.25	13.50	9.25	78.00	1.53
May .	13.60	12.50	12.75	13.25	14.25	13.17	13.25	13.50	9.47	91.00	1.50
June .	13.75	12.57	12.70	13.42	14.25	13.08	13.25	13.50	9.50	100.00	1.50
July .	13.98	12.87	12.72	13.83	14.28	12.83	13.20	13.50	9.61	100.00	1.67

* Contract price, f.o.b. Baltimore; † Prompt, f.o.b. Connellsville ovens.

‡ Spot shipment; no contract market.

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decline of \$2 a ton during six months in which all other steel products had advanced. The softness in sheets was due to the light demand for galvanized, on account of high prices necessitated by the scarcity of spelter, a large amount of sheet making capacity thus being released. Early in July the black sheet market stiffened slightly and in the first few days of August a sharp stiffening occurred, carrying the market to 1.85c. The demand for galvanized remained extremely light, with mill prices nominally on the basis of 4.25c for No. 28, but with many irregularities.

Pig Iron.

Pig iron started definitely to stiffen in practically all markets early in July but advances were very moderate until the closing week of the month. Then a very sharp advance began, the market becoming highly excited and hardly quotable, sellers frequently effecting sales upon quotations which had been made to ward off the business. A comparison of prices July 1st and August 1st is not illuminating, because there were sharp advances in the first few days

of August. From July 1st to August 6th the following advances occurred:

Birmingham	\$1.00 to \$10.50
Foundry, Philadelphia	25c to 14.50
Foundry, Buffalo (delivered).....	50c to 13.25
Foundry, Cleveland (deliv'd).....	50c to 13.50
Foundry, Chicago (furnace).....	50c to 13.50
Foundry, valley	75c to 13.25
Basic, valley	\$1.10 to 13.75
Bessemer, valley	1.00 to 14.75

The pig iron market is now so aligned as to promise sharp advances in August and later months. The furnaces in blast are well sold up and the idle furnaces are indisposed to blow in unless they are offered much more than recent prices. The speculative iron is tightly held.

A feature of the general pig iron market which is destined to become generally admitted as a very important one is that southern iron is strongly aligned to resume its old time leadership, for in the great movements of the past, upwards or downwards, southern iron has always led by a

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

Shapes, Plates, Bars, Pipe.	Wire Cut		Sheets		Tin		Composite	
	Wire.	Nails.	Black.	Galv.	plate.	steel.		

1914—

January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.32	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September ..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November .	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.35	1.5182

1915—

January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	3.10	1.4554
February ..	1.10	1.10	1.10	80¾	1.38	1.58	1.55	1.80	3.09	3.10	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.80	3.40	3.15	1.5098
April	1.20	1.20	1.20	80	1.37	1.57	1.55	1.80	3.40	3.20	1.5357
May	1.20	1.17	1.20	79	1.35	1.55	1.55	1.80	3.60	3.11	1.5381
July	1.25	1.22	1.27	79	1.38	1.58	1.55	1.74	4.45	3.10	1.5092

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new weeks or months. While the southern market has experienced a decided increase in demand, an entirely new element that has suddenly made the furnace position very strong is the shifting of the Tennessee company, the largest merchant producer, from the selling to the buying position. This shift occurred chiefly through a sudden influx of war orders. There had been no prospect of the Ensley mill running at all mill on rails, but suddenly there was an overflow of large steel round business from the north, giving the Ensley mill an altogether unexpected tonnage for the rail mill—it makes at least the third rail mill rolling these rounds—while the demand for wire products has been exceptionally heavy. Not only did the Tennessee company, at

the close of July, withdraw as a seller of iron by quoting \$12.50, Birmingham, it turned buyer and is understood to have picked up round tonnages before the steel market advanced to \$10.50 where it stood when August was but three or four days old.

The Future.

Obviously the steel industry is bound to run at capacity and the only question is how long. A period of years does not seem an improbable guess. The war demand will likely last for a year, two years or three years, and is likely to increase rather than diminish during the war. Neutral and non-producing countries are certain to recover at least in part from the prostration the inception of war at

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909:

Quarter.	1915.	1914.	1913.
1st	\$12,457,809	\$17,994,382	\$34,426,802
2nd	27,950,055	20,457,596	41,219,813
3rd		22,276,002	38,450,400
4th		10,935,635	23,084,330
Year		71,663,615	127,181,345

	1912.	1911.	1910
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	30,063,512	29,522,725	37,365,187
4th	35,181,922	23,155,018	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1906 ..	7,018,712	6,809,584	7,936,884	8,489,718
1907 ..	8,014,858	7,604,878	6,412,008	7,642,554
1908 ..	3,765,313	3,313,876	3,421,977	3,603,237
1909 ..	2,542,390	4,057,930	4,796,833	5,077,031
1910 ..	5,402,514	4,257,794	3,158,106	2,854,137
1911 ..	3,447,301	3,561,058	3,611,317	5,984,761
1912 ..	5,304,841	5,807,346	6,551,507	7,932,161
1913 ..	7,168,956	5,897,317	5,003,785	4,282,108
1914 ..	4,653,825	4,032,857	3,787,667	3,836,643
1915 ..	4,225,149	4,678,196		

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, our own estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship- ments.	Book- ings.	Dif- ference.	Dif- ference.
	%	%	%	Tons.
November ..	70	59	-11	-117,420
December ..	50	40	-10	-114,239
January 1914	55	83	+28	+331,572
February ..	67	105	+38	+412,764
March ..	72	40	-32	-379,615
April ..	67	75	+8	+376,157
May	62	37	-25	-278,908
June ..	63	66	+3	+34,697
July	64	75	+11	+125,732
August ..	67	72	+5	+54,742
September ..	62	74	+12	+425,664
October ...	55	28	-27	-326,570
November ..	45	77	+32	+1,077,007
December ..	38	82	+44	+512,051
January 1915	44	81	+37	+441,928
February ..	57	66	+9	+39,800
March	67	60	-7	-86,622
April	71	63	-8	-95,705
May	76	82	+6	+101,794
June	74	105	+31	+347,758

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caused, while in any event they have exhausted the stocks they were carrying at the beginning of the war. They are likely to become much heavier buyers in the United States. The domestic demand promises to increase as the country becomes more prosperous through the filling of war orders and a general revival in industry. The country's steel requirements increase from year to year, and in present conditions as to labor and money the steel industry is not likely to increase its capacity nearly as rapidly as it usually does in a period of prosperity, so that capacity will have less opportunity to overtake an increasing demand than it has had in the past. All these influences suggest that, now the steel industry is prosperous and operating at capacity, the period of prosperity may easily prove to be the longest the steel industry has yet enjoyed.

As to pig iron, it is to be noted it lagged behind the steel improvement for six or seven months, and in that respect alone it has room for substantial price advances. At the beginning of August a runaway in pig iron seems possibly to have started and the month may show the actual performance.

NO STEEL MERGER POSSIBLE.

Considerable interest was created in the trade late last month in a report that there was a new Steel Trust to be formed to include the following Companies with par value of their stocks and bonds as follows:

Bethlehem Steel Corp.....	\$73,600,000
Colorado Fuel & Iron Co.....	81,400,000
Lackawanna Steel Co.....	81,000,000
Republic Iron & Steel Co.....	70,500,000
Jones & Laughlin Steel Co....	52,500,000
Crucible Steel Co. of Am.....	60,000,000
Pennsylvania Steel Co.....	50,000,000
Cambria Steel Co.....	45,000,000
Youngstown Sheet & Tube Co.	26,500,000
Total	\$540,500,000

Beyond these companies actually named as scheduled for entry into the new steel trust, conjecture runs riot. It was reported that the Republic Iron & Steel Company may be included and that the Youngstown Sheet & Tube Company, a corporation closely affiliated with the Pickands, Mather

& Company interests, may also join.

Should it go as far as this, it can be taken for granted that it will also take in upward of \$100,000,000 worth of lake steamship and Lake Superior iron ore enterprises controlled by the leading interests of this city. And it may even reach down the line and take in such smaller concerns as the Inland Steel Company of Chicago, the Brier Hill Steel Company of Youngstown, the La Belle Iron Works of Wheeling and others in the same class operating throughout the Mahoning and Shenango valleys.

We do not doubt that if a merger of the independent steel companies were almost completed there would be men who would refuse to believe the merger was likely to be accomplished. Likewise we believe that if such a merger were practically impossible there would still be some men who would consider its accomplishment probable. Therefore it seems worth while to devote a little attention to the story the Cleveland "Leader" published on July 26th, that the leading independent steel companies were to be consolidated and C. M. Schwab was to be president of the consolidation. Of course the head of the new company had to be picked, or a very important element in the "human interest" side of the story would be neglected.

We do not think any differently on this subject than we did three or four weeks ago, when we said in the July number of the Steel and Metal Digest, discussing "Steel conditions after the steel suit":

"One thing that used to be discussed quite seriously not so long ago, may probably be dismissed as out of the question, and that is a union of the prominent 'independents'. Repeatedly it has been insisted in some quarters that, the law permitting, there would eventually be a consolidation of all or a preponderating majority of the following: Republic, Cambria, Pennsylvania, Bethlehem, Lackawanna, Jones & Laughlin and perhaps several others. In view of the spirit of the decision in the Steel Corporation suit it would appear that any such union would be merely an invitation to the government to interfere. The steel suit was 'largely one of business facts' with the Steel

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Corporation unable to dominate or control, but two concerns, say a 50% and a 40% interest, would apparently be too much. Either they would not make money or their lightest acts would arouse suspicions.

"Quite incidentally it may be mentioned that the independents evince no particular desire to get together. Even the Cambria-Pennsylvania union, so often rumored, seems a long ways off. As to Bethlehem, it seems quite certain in present circumstances that Mr. Schwab would not give a moment's consideration to any project looking to a union with any other producers."

There is everything against such a consolidation. As to the consolidation of 1901, the National Steel Company needed pig iron and ore. The American Tin Plate and American Sheet Steel companies needed sheet bars. The American Bridge Company needed plates and structural shapes. The Carnegie Steel Company needed outlets for semi-finished products. The present independents, Republic, Bethlehem, Cambria, Jones & Laughlin, Lackawanna, Pennsylvania, etc., do not sell to each other. Each is integrated vertically, mining iron ore and selling finished steel. When the Steel Corporation was formed there was danger of too much plant being erected, the large companies going after each other's trade. No such danger exists to-day.

The government would ask this consolidation why it was formed. Can an answer be conceived that would pass muster under the Sherman law? It seems quite evident from the record in the Steel Corporation suit that the chief reason the Steel Corporation won was because the government had waited ten years before bringing the suit. It won chiefly on two pieces of evidence: (1) Independents thrive; (2) Membership in pools was given up. If, for argument, the companies mentioned above should consolidate the government would not wait ten years for Lukens, Worth, Allegheny Steel, American Rolling Mill, Sharon Steel Hoop, etc., to grow up as steel companies of the first water. As to the Schwab Steel Company, or whatever it might be called, refusing membership in pools, it is quite patent that no pools would

be needed when there were only the Schwab Steel Company and the United States Steel Corporation in the field. Nowadays in a market advance or decline it may require as much as two or three days for the steel sellers to ascertain positively whether all the producers have advanced or reduced prices. With but two companies it would be a matter rather of minutes. Prices could be put out by the day for all the traffic would bear, without any agreement, but without the thing being done it could be made clear in court that it could be done and that would make the new consolidation illegal. Nor could they reduce prices and be secure, for the Clayton law against unfair competition would step in. Why should the Schwab Steel Company reduce its price on beams a dollar a ton except to bankrupt the United States Steel Corporation, and vice versa?

Besides all which we cannot conceive that anyone wants to sell out at prices anyone wants to pay.

ROLLED IRON AND STEEL IN 1914.

The Bureau of Statistics of the American Iron & Steel Institute has received from the manufacturers statistics of the production of iron and steel merchant bars, concrete bars, skelp, nail plate, hoops, bands and cotton-ties, sheet piling, etc., in the United States in 1914; also statistics of the production of all kinds of finished rolled forms.

Merchant Bars.

	Iron.	Steel.	Total.
1914	563,171	1,960,460	2,523,631
1913	1,026,632	2,930,977	3,957,609
1912	944,790	2,752,324	3,697,114
1911	838,625	2,211,737	3,047,362
1910	1,074,163	2,711,568	3,785,731
1909	952,230	2,311,301	3,263,531
1908	685,233	1,301,405	1,986,638
1907	1,440,356	2,530,632	3,970,988
1906	1,481,348	2,510,852	3,992,200
1905	1,322,439	2,271,162	3,593,601

Concrete Bars.

	Iron.	Steel.	Total.
1914 .....	....	288,471	288,471
1913	113	319,557	319,670
1912	2,500	271,832	274,332
1911	2,388	256,353	258,741
1910	4,645	236,164	241,109
1909 .....	....	159,352	159,352

COMPARISON OF METAL PRICES.

Fig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. July 31.
	High.	Low.	High.	Low.	High.	Low.	
Bessemer, valley	17.25	14.25	14.25	13.75	14.25	13.60	14.25
Basic, valley	16.50	12.50	13.25	12.50	12.65	13.00	13.00
No. 2 foundry, valley	17.50	13.00	13.25	12.75	12.75	12.50	12.75
No. 2X fdy. Philadelphia. 18.50	14.50	15.00	14.20	14.50	14.00	14.50	14.50
No. 2 foundry, Cleveland .	17.75	13.50	14.25	13.25	13.50	13.00	13.50
No. 2X foundry, Buffalo..	18.00	13.00	13.75	12.25	13.25	11.75	13.25
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	13.50	13.00	13.50
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	10.00	9.25	10.00
Scrap Iron and Steel.							
Melting steel Pittsburgh .	15.00	10.75	12.00	9.75	13.00	11.00	13.00
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	11.50	8.75	11.50
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	11.25	10.75	11.25
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	12.00	11.00	12.00
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	12.50	9.50	12.50
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.20	1.20	1.20
Iron bars, Philadelphia....	1.67½	1.22½	1.27½	1.12½	1.40	1.12½	1.40
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.30	1.10	1.30
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.25	1.10	1.25
Structural shapes, Pitts. .	1.50	1.20	1.25	1.05	1.30	1.10	1.30
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12½	1.20	1.12½	1.20
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	1.80	1.70	1.80
Galv. sheets, Pittsburgh..	3.50	2.80	3.00	2.75	5.00	2.65	4.25
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.20	3.10	3.10
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.55	1.55	1.55
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.60	1.50	1.60
Steel pipe, Pittsburgh	79%	80%	79½%	81½%	79½%	81½%	79½%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.75	2.00	1.60	1.75	1.50	1.50
Prompt foundry	4.50	2.40	2.50	2.00	2.25	2.00	2.25
Metals—New York.							
Straits tin	51.00	36.75	65.00	28.50	57.00	32.80	54.12
Lake copper	17.75	14.50	15.50	11.50	20.62½	13.00	18.75
Electrolytic copper	17.65	14.12½	14.87½	11.10	20.50	12.80	18.31½
Casting copper	17.45	13.87½	14.65	11.00	19.62½	12.50	17.00½
Sheet copper	22.00	19.75	20.25	16.50	25.00	18.75	24.50
Lead (Trust price)	4.75	4.00	4.15	3.50	4.60	3.70	3.50
Spelter	7.35	5.10	6.20	4.75	27.50	5.70	18.12
Chinese & Jap. antimony	9.00	6.00	18.00	5.50	38.00	15.00	17.87½
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	33.00	18.75	32.50
Silver	63¾	56¾	59½	47½	51½	46½	47.12½
St. Louis.							
Lead	4.72½	3.85	4.10	3.35	4.50	4.10	3.50
Spelter	7.17½	4.95	6.00	4.60	27.00	5.55	17.87½
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	33.00	9.00	27.00
London.							
Standard tin, prompts	232	166½	188	152	190	148½	155
Standard copper, prompts...	77½	61¾	66¾	49	86¼	57½	71
Lead	21½	15¾	24	17½	28½	18½	21
Spelter	26¼	20¼	33	21½	110	28½	92½
Silver	29¾d	25¾d	27¾d	22¾d	24¾d	22¾d	22¾d

PTEMBER

[illegible]

Year	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020
Population	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
Area	100	150	200	250	300	350	400	450	500	550	600	650	700
Volume	10	15	20	25	30	35	40	45	50	55	60	65	70
Weight	100	150	200	250	300	350	400	450	500	550	600	650	700
Length	10	15	20	25	30	35	40	45	50	55	60	65	70
Width	10	15	20	25	30	35	40	45	50	55	60	65	70
Height	10	15	20	25	30	35	40	45	50	55	60	65	70
Depth	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature	10	15	20	25	30	35	40	45	50	55	60	65	70
Pressure	10	15	20	25	30	35	40	45	50	55	60	65	70
Humidity	10	15	20	25	30	35	40	45	50	55	60	65	70
Wind Speed	10	15	20	25	30	35	40	45	50	55	60	65	70
Cloud Cover	10	15	20	25	30	35	40	45	50	55	60	65	70
Precipitation	10	15	20	25	30	35	40	45	50	55	60	65	70
Solar Radiation	10	15	20	25	30	35	40	45	50	55	60	65	70
Air Quality	10	15	20	25	30	35	40	45	50	55	60	65	70
Water Quality	10	15	20	25	30	35	40	45	50	55	60	65	70
Soil Quality	10	15	20	25	30	35	40	45	50	55	60	65	70
Vegetation	10	15	20	25	30	35	40	45	50	55	60	65	70
Wildlife	10	15	20	25	30	35	40	45	50	55	60	65	70
Human Activity	10	15	20	25	30	35	40	45	50	55	60	65	70
Infrastructure	10	15	20	25	30	35	40	45	50	55	60	65	70
Transportation	10	15	20	25	30	35	40	45	50	55	60	65	70
Communication	10	15	20	25	30	35	40	45	50	55	60	65	70
Education	10	15	20	25	30	35	40	45	50	55	60	65	70
Healthcare	10	15	20	25	30	35	40	45	50	55	60	65	70
Industry	10	15	20	25	30	35	40	45	50	55	60	65	70
Commerce	10	15	20	25	30	35	40	45	50	55	60	65	70
Finance	10	15	20	25	30	35	40	45	50	55	60	65	70
Government	10	15	20	25	30	35	40	45	50	55	60	65	70
Law	10	15	20	25	30	35	40	45	50	55	60	65	70
Arts	10	15	20	25	30	35	40	45	50	55	60	65	70
Science	10	15	20	25	30	35	40	45	50	55	60	65	70

A YEAR'S EFFECT OF
COPPER - TIN - LEAD - SOLDER

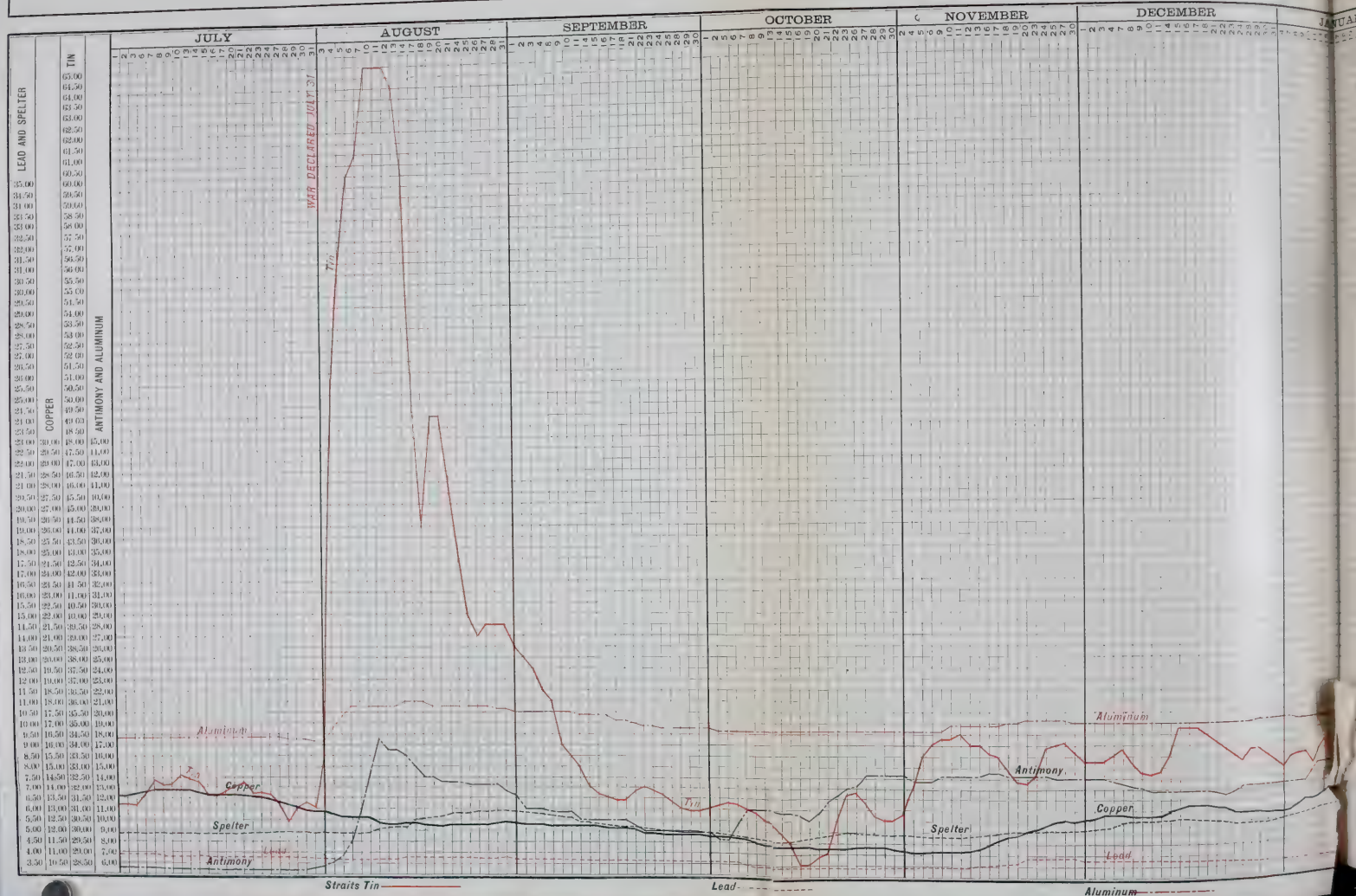
OCTOBER																															NOVEMBER																															DECEMBER																															JANUARY																														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Silver	29 ⁷ / ₈ d	25 ¹ / ₂ d	27 ¹ / ₂ d	22 ¹ / ₂ d	24 3.1	22 6.1	22 3.1
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The Steel and Metal Digest

MONTHLY

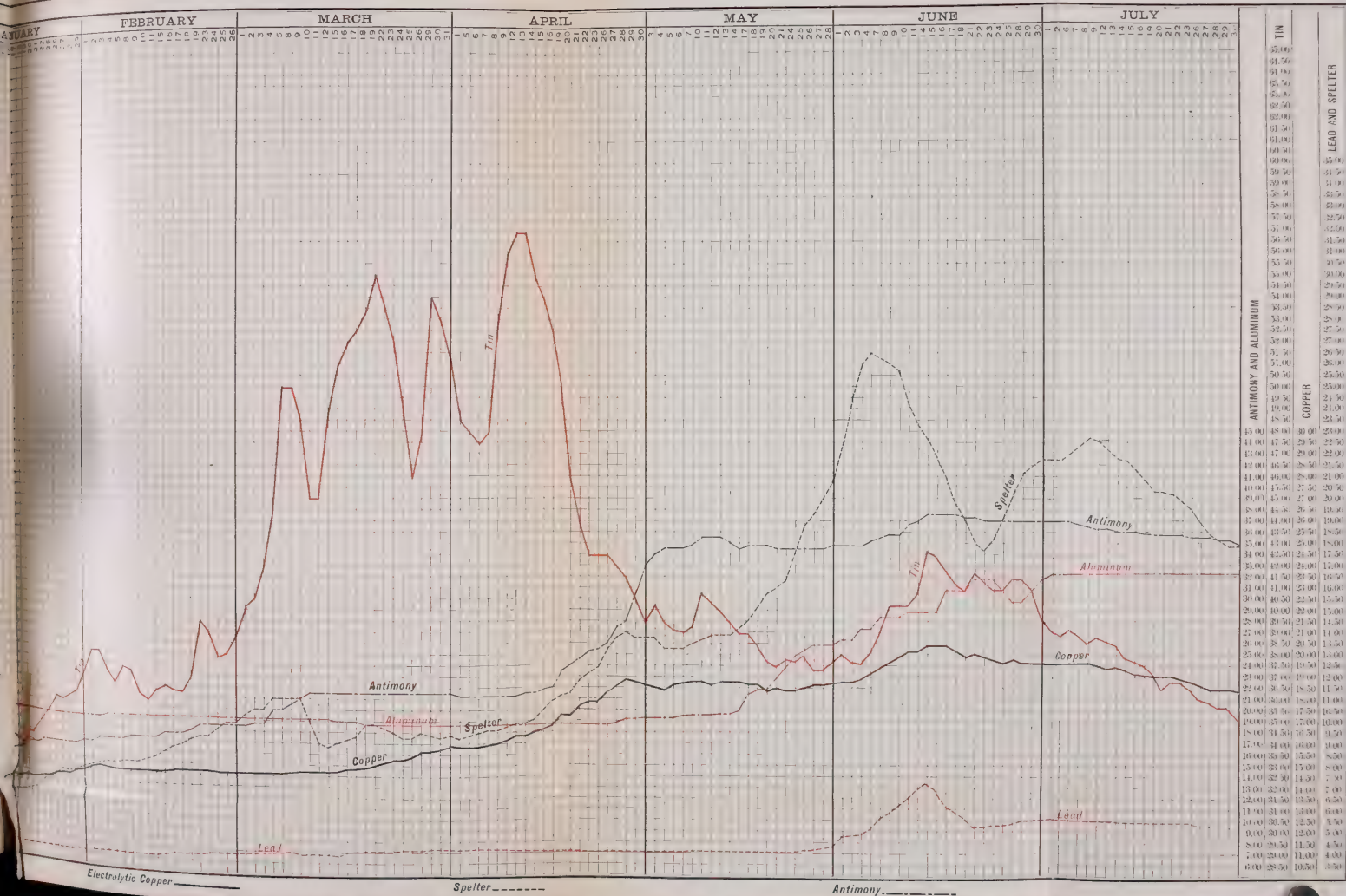
A YEAR'S EFFECT OF COPPER - TIN - LEAD - SELLER



WAR ON METALS

ANTIMONY - ALUMINUM

Plotted according to the daily prices of Electrolytic Copper, New York;
Straits Tin, New York; Pig Lead, St. Louis; Prime Western Spelter, St. Louis;
Chinese & Japanese Antimony, New York; Aluminum (98 to 99%) New York.



COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. July 31,
	High.	Low.	High.	Low.	High.	Low.	
Atchison, Top. & Sante Fe...	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100	89	105	92	100 $\frac{1}{4}$
Atch. Top. & Sante Fe, pfd..	102 $\frac{1}{4}$	96	101	96	101	96	97 $\frac{7}{8}$
Baltimore & Ohio	106 $\frac{3}{8}$	90 $\frac{3}{8}$	98	87	82	90	79 $\frac{3}{8}$
Canadian Pacific	266 $\frac{3}{4}$	204	226	153	174	148	145
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	40	49	25	40 $\frac{1}{4}$
Chicago, Mil. & St. Paul	116 $\frac{3}{4}$	96 $\frac{3}{4}$	107 $\frac{1}{8}$	84 $\frac{3}{4}$	98 $\frac{1}{4}$	77 $\frac{3}{4}$	81 $\frac{1}{4}$
Erie R. R.	32 $\frac{1}{2}$	20 $\frac{1}{4}$	32 $\frac{1}{2}$	20 $\frac{1}{8}$	30	19 $\frac{7}{8}$	26 $\frac{5}{8}$
Great Northern, pfd.	132 $\frac{3}{8}$	115 $\frac{1}{2}$	144	111	122	102	117 $\frac{5}{8}$
Lehigh Valley	165 $\frac{3}{8}$	141 $\frac{1}{4}$	156	118	146	120	143 $\frac{3}{8}$
Louisville & Nashville	142 $\frac{1}{4}$	126 $\frac{1}{4}$	141 $\frac{7}{8}$	125	125 $\frac{1}{2}$	104 $\frac{1}{2}$	112
Missouri, Kansas & Texas ..	29 $\frac{1}{8}$	18 $\frac{1}{8}$	24	8	15 $\frac{1}{2}$	5	6 $\frac{1}{4}$
Missouri Pacific	43 $\frac{3}{8}$	21 $\frac{1}{4}$	40	7	18 $\frac{1}{4}$	11	21 $\frac{1}{2}$
New York Central	109 $\frac{3}{4}$	90 $\frac{3}{8}$	96 $\frac{5}{8}$	77	92 $\frac{3}{4}$	81 $\frac{1}{2}$	88
N. Y., N. H. & Hartford	129 $\frac{7}{8}$	65 $\frac{3}{8}$	78	49 $\frac{1}{2}$	71 $\frac{1}{2}$	47	61 $\frac{1}{2}$
Northern Pacific	122 $\frac{3}{8}$	101 $\frac{3}{4}$	118	97	112	99	106 $\frac{1}{4}$
Pennsylvania R. R.	123 $\frac{3}{4}$	106	115 $\frac{1}{2}$	102 $\frac{1}{2}$	111 $\frac{3}{8}$	103 $\frac{5}{8}$	108
Reading	171 $\frac{3}{4}$	151 $\frac{3}{8}$	152 $\frac{1}{2}$	137	157	138	148 $\frac{3}{8}$
Rock Island	24 $\frac{7}{8}$	11 $\frac{5}{8}$	16	5	13	8	18
Southern Pacific	110	83	99	81	95	81	87 $\frac{1}{4}$
Union Pacific	162 $\frac{3}{4}$	137 $\frac{3}{4}$	164 $\frac{3}{8}$	112	134 $\frac{5}{8}$	115 $\frac{3}{4}$	128 $\frac{1}{2}$
Wabash	6	2	4		2		1 $\frac{1}{8}$

Industrials.

Amalgamated Copper	80 $\frac{1}{2}$	61	78	48 $\frac{1}{2}$	70	50	73
Am. Beet Sugar	50 $\frac{1}{2}$	19 $\frac{3}{4}$	33	10	37	23	56
American Can	46 $\frac{7}{8}$	21	35	19 $\frac{1}{2}$	61 $\frac{1}{2}$	25	58 $\frac{1}{4}$
American Can Pfd.	129 $\frac{1}{2}$	80 $\frac{1}{2}$	96	80	106 $\frac{1}{2}$	89	106
Am. Car & Foundry	56 $\frac{3}{8}$	36 $\frac{1}{2}$	53 $\frac{1}{2}$	42 $\frac{1}{4}$	59 $\frac{1}{4}$	40	57
Am. Cotton Oil	57 $\frac{3}{8}$	33 $\frac{1}{2}$	46	32	54	39	48 $\frac{1}{4}$
Am. Locomotive	44 $\frac{1}{2}$	27	37	29	68	10	54
Am. Smelting & Refining	74 $\frac{3}{4}$	58 $\frac{1}{2}$	71 $\frac{1}{8}$	50 $\frac{1}{4}$	84 $\frac{1}{2}$	56	78 $\frac{1}{2}$
Brooklyn Rapid Transit	92 $\frac{3}{4}$	83 $\frac{3}{4}$	94 $\frac{1}{4}$	79	93	84	85
Chino Copper	47 $\frac{3}{8}$	30 $\frac{3}{8}$	44	10	49	21	45 $\frac{3}{8}$
Colo. Fuel & Iron Co.	41 $\frac{1}{2}$	24 $\frac{1}{2}$	34 $\frac{1}{2}$	20 $\frac{1}{2}$	43 $\frac{3}{8}$	21 $\frac{3}{4}$	39 $\frac{1}{4}$
Consolidated Gas	142 $\frac{3}{8}$	125 $\frac{1}{8}$	139 $\frac{1}{2}$	112 $\frac{1}{2}$	131 $\frac{3}{4}$	113 $\frac{3}{4}$	128 $\frac{1}{2}$
General Electric	187	129 $\frac{3}{4}$	150	137	177	148	173
Interborough Metropolitan ..	19 $\frac{1}{2}$	12 $\frac{1}{8}$	16	10 $\frac{1}{2}$	21	10	21
International Harvester	111 $\frac{1}{2}$	96	113 $\frac{1}{2}$	82	114	90	98
Lackawanna Steel	49 $\frac{7}{8}$	29 $\frac{7}{8}$	40	26	51	28	50 $\frac{1}{4}$
National Lead	56 $\frac{1}{2}$	43	52	40	50	44	63 $\frac{1}{4}$
Ray Consolidated Copper	22	15	22	15	26	15	23
Republic Iron & Steel	28 $\frac{1}{2}$	17	27	8	40	20	42 $\frac{1}{8}$
Republic Iron & Steel, pfd...	92 $\frac{1}{4}$	72	91 $\frac{1}{4}$	75	97 $\frac{1}{4}$	72	95 $\frac{3}{4}$
Sloss-Sheffield	45 $\frac{1}{2}$	23	37	19	44	22	42 $\frac{1}{2}$
Texas Co.	132 $\frac{1}{2}$	89	141	112	144	120	133 $\frac{1}{2}$
U. S. Rubber	69 $\frac{3}{4}$	51	67	44	70	54	45 $\frac{3}{4}$
U. S. Steel Corporation	69 $\frac{1}{4}$	49 $\frac{3}{4}$	67	48	68	48	66 $\frac{3}{8}$
U. S. Steel Corporation, pfd..	110 $\frac{3}{4}$	102 $\frac{1}{2}$	112 $\frac{3}{4}$	103 $\frac{1}{4}$	112 $\frac{7}{8}$	102	112 $\frac{3}{4}$
Utah Copper	60	40 $\frac{1}{2}$	57	45	70	48	66 $\frac{3}{4}$
Va. Carolina Chem.	14 $\frac{1}{2}$	92	14	7	7	17	34 $\frac{1}{4}$
Western Union Telegraph ...	75 $\frac{1}{8}$	54 $\frac{1}{8}$	66 $\frac{7}{8}$	53 $\frac{3}{8}$	70 $\frac{7}{8}$	57	69

ROLLED IRON AND STEEL IN 1914. (Continued from page 329).

Skelp.							
	Iron.	Steel.	Total.				
1914	264,340	1,718,091	1,982,431	Wire rods ..	731	2,430,983	2,431,714
1913	312,746	2,189,218	2,501,964	Structural			
1912	327,012	2,119,804	2,446,816	shapes	1,981	2,029,143	2,031,124
1911	322,397	1,658,276	1,980,673	Merchant bars	563,171	1,960,460	2,523,631
1910	350,578	1,477,616	1,828,194	Bars for rein-			
1909	370,151	1,663,230	2,033,381	forced con-			
1908	297,049	853,534	1,150,583	crete work.	....	288,471	288,471
1907	444,536	1,358,091	1,802,627	Skelp, flue, etc.	264,340	1,718,091	1,982,431
1906	391,517	1,137,068	1,528,585	Long angle			
1905	452,797	983,198	1,435,995	splice bars,			
Miscellaneous 1914.				tie-plate bars.			
	Iron.	Steel.	Total.	etc.	50,295	372,757	423,052
Hoops .....	....	211,028	211,028	Hoops .....	....	211,028	211,028
Bands and cot-				Bands and cot-			
ton-ties ...	180	345,739	345,919	ton ties ...	180	345,739	345,919
Long angle				Rolled sheet			
splice bars,				piling, not			
fish-plate				including			
bars, tie-				fabricated..	....	35,314	35,314
plate bars				Railroad ties.	....	33,249	33,249
and other				All other fin-			
rail joint				ished rolled			
shapes	50,295	372,757	423,052	products ..	223,802	714,116	937,918
Sheet piling.	....	35,314	35,314	Rolled forging			
Railroad ties.	....	33,249	33,249	blooms, forg-			
Spike and				ing billets,			
chain rods,				etc.	500	331,024	331,524
bolt and nut				Exports of			
rods, horse-				blooms bil-			
shoe-bars,				lets, sheet			
strips etc.,	223,802	714,116	937,918	bars, etc. .	1,461	90,446	91,907
Rolled forg-				Total for 1914	1,167,776	17,202,420	18,370,196
ing blooms,				1913	1,678,257	23,112,986	24,791,243
billets, etc.	500	331,024	331,524	1912	1,637,582	23,019,259	24,656,841
Blooms, bil-				1911	1,460,615	17,578,556	19,039,171
lets, sheet				1910	1,740,156	19,881,123	21,621,279
bars, etc.,				1909	1,709,431	17,935,259	19,644,690
for export.	1,461	90,446	91,907	1908	1,238,449	10,589,744	11,828,193
Total	276,238	2,133,673	2,409,911	1907	2,200,086	17,664,736	19,864,822
Rolled Iron and Steel in 1914, Compared.				1906	2,186,557	17,401,911	19,588,468
	Iron.	Steel.	Total.	1905	2,059,990	14,780,025	16,840,015
Rails .....	....	1,945,095	1,945,095	1904	1,760,084	10,253,297	12,013,381
Plates and				In addition to the 35,314 tons of rolled sheet piling above reported there were produced by rolling mills and steel works in 1914 about 11,483 tons of fabricated sheet piling, as consigned with 13,463 tons in 1913.			
sheets	56,590	4,662,656	4,719,246				
Nail and spike							
plate	4,725	33,848	38,573				

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	20,985,505
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	25,302,649
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	26,536,612
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	
August	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773	
September ...	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December ...	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613	

Totals ... \$201,271,903 \$249,656,411 \$289,128,420 \$293,934,160 \$199,861,684 \$107,348,808

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	174,313
April	93,285	100,911	117,921	228,149	267,313	259,689	161,952	223,240
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	263,649
June	69,770	114,724	120,601	174,247	273,188	243,108	144,003	
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	

Totals 961,242 1,243,567 1,540,895 2,187,724 2,048,466 2,730,681 1,549,503 945,359

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. ..	154,118	175,463	101,804	75,286
Feb. ..	129,693	188,734	112,574	78,773
Mar. ..	157,469	164,865	68,549	88,402
April ..	178,502	174,162	111,812	91,561
May ..	194,482	191,860	125,659	98,974
June ..	180,122	241,069	188,647	
July ..	185,677	272,017	141,838	
Aug. ..	178,828	213,139	135,693	
Sept. ..	180,571	295,424	109,176	
Oct. ..	202,125	274,418	114,341	
Nov. ..	163,017	179,727	90,222	
Dec. ..	199,982	223,892	51,053	

Totals 2,104,576 2,594,770 1,351,368 432,996

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan.	33,071	20,008	21,740	17,776	10,568
Feb.	20,812	11,622	25,505	14,757	7,506
Mar.	23,533	15,466	27,467	27,829	8,025
April	22,392	12,481	25,742	30,585	16,565
May	23,347	15,949	28,728	28,173	28,916
June	29,399	21,407	36,597	23,076	
July	15,782	17,882	39,694	25,282	
Aug.	10,944	20,571	18,740	28,768	
Sept.	14,039	18,740	19,941	38,420	
Oct.	21,035	25,559	20,840	22,754	
Nov.	13,880	24,154	25,809	24,165	
Dec.	19,665	21,231	26,454	9,493	

Total 256,903 225,072 317,260 290,394 71,586

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed:

1914—				1915—			
May 19	Bars	1.15	to 1.12½	Feb. 11	Wire nails	1.55	to 1.60
" 22	Wire nails	1.60	to 1.55	" 11	Pipe	81% to	80%
" 26	Shapes	1.15	to 1.12½	" 15	Galv. sheets	3.00	to 3.25
" 29	Plates	1.12½	to 1.10	" 25	Galv. sheets	3.25	to 3.40
" 29	Wire nails	1.55	to 1.50	Mar. 1	Bars	1.10	to 1.15
June 9	Sheets	1.85	to 1.80	" 1	Plates	1.10	to 1.15
" 19	Bars	1.12½	to 1.10	" 1	Shapes	1.10	to 1.15
" 19	Shapes	1.12½	to 1.10	" 1	Wire galvanizing		
July 20	Wire nails	1.50	to 1.55		differential	40c	to 50c
" 21	Bars	1.10	to 1.15	Mar. 15	Shafting	68% to	70%
" 21	Shapes	1.10	to 1.15		(New list, f.o.b. Pittsburgh		
" 23	Plates	1.10	to 1.15		instead delivered)		
" 30	Tin plate	3.30	to 3.35	" 17	Wire galvanizing		
Aug. 5	Tin plate	3.25	to 3.40		differential	50c	to 60c
" 6	Sheets	1.80	to 1.85	April 1	Boiler tubes		75%
" 11	Sheets	1.80	to 1.85	" 1	Bars	1.15	to 1.20
" 11	Bars	1.15	to 1.20	" 1	Plates	1.15	to 1.20
" 11	Shapes	1.15	to 1.20	" 1	Shapes	1.15	to 1.20
" 14	Tin plate	3.40	to 3.60	" 14	Wire nails	1.60	to 1.55
" 21	Wire nails	1.55	to 1.60	May 1	Steel pipe	80% to	79%
" 31	Sheets	1.90	to 2.00	" 1	Boiler tubes	75% to	74%
Sept 16	Tin plate	3.60	to 3.30	" 1	Tin plate	3.20	to 3.10
" 26	Sheets	2.00	to 1.95	" 12	Plates	1.20	to 1.15
" 29	Bars	1.20	to 1.15	" 17	Galvanized sheets	3.40	to 3.60
" 29	plates	1.20	to 1.15	" 24	Galvanized sheets	3.60	to 3.75
" 30	Tin plate	3.30	to 3.25	June 1	Galvanized pipe	62½ to	63½
Oct. 5	Sheets	1.95	to 2.00	" 1	Galvanized sheets	3.75	to 4.25
" 7	Shapes	1.20	to 1.15	" 1	Wire galvanizing		
" 22	Sheets	2.00	to 1.90		differential	60c	to 80c
" 27	Plates	1.15	to 1.10	" 8	Sheets	1.80	to 1.75
Nov. 2	Pipe (extra 2½% removed)			" 9	Galv. sheets	4.25	to 5.00
		80% to	81%	July 1	Bars	1.20	to 1.25
" 5	Bars	1.15	to 1.10	" 1	Plates	1.15	to 1.20
" 5	Shapes	1.15	to 1.10	" 1	Shapes	1.20	to 1.25
" 18	Sheets	1.90	to 1.85	" 2	Sheets	1.75	to 1.70
" 24	Plates	1.10	to 1.05	" 6	Wire nails	1.55	to 1.60
" 24	Wire nails	1.60	to 1.55	" 7	Sheets	1.70	to 1.75
Dec. 1	Bars	1.10	to 1.05	" 14	Galvanized sheets	5.00	to 4.50
" 1	Shapes	1.10	to 1.05	" 16	Boiler tubes	73% to	72%
" 3	Tin plate	3.25	to 3.20	" 20	Plates	1.20	to 1.25
" 4	Wire nails	1.55	to 1.50	" 20	Wire nails	1.60	to 1.55
" 28	Tin plate	3.20	to 3.10	" 21	Bars	1.25	to 1.30
" 30	Sheets	1.85	to 1.80	" 28	Galvanized sheets	4.50	to 4.25
1915—				" 29	Wire nails	1.55	to 1.60
Jan. 1	Bars	1.05	to 1.10	Aug. 3	Shapes	1.25	to 1.20
" 1	Plates	1.05	to 1.10	" 4	Sheets	1.75	to 1.80
" 1	Shapes	1.05	to 1.10				
" 11	Wire nails	1.50	to 1.55				

COMPOSITE STEEL.

Computation for August 1, 1915:

Pounds.	Group.	Price.	Extension.
20	Bars	1.30	2.60
1½	Plates	1.25	1.875
1½	Shapes	1.30	1.950
1½	Pipe (¾-3)	2.10	3.150
1	Wire nails	1.60	2.400
1	Sheets (28 bl.)	1.80	1.800
1	Thin plates	2.10	1.575
10 pounds			15.475

One pound 1.5975

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	1.5381
June	1.6817	1.5794	1.7719	1.4750	1.5312
July	1.6701	1.6188	1.7600	1.4805	1.5692
Aug.	1.6394	1.6784	1.7400	1.5421	.....
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

Melting Steel. Bundled No. 1 R. R. No. 1 No. 1 Heavy
Steel. Sheet. Wrought. Cast. Steel. Mel't'g.
Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1913—

Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21

1914—

Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.32	11.51	11.71	10.53	9.55

1915—

Jan.	11.40	9.20	10.75	11.25	10.30	9.00
Feb.	11.70	9.25	10.75	11.25	10.70	9.20
Mar.	11.80	9.37	10.75	11.50	10.55	9.25
Apr.	11.65	9.37	10.75	11.85	11.10	9.13
May	11.65	9.37	10.75	11.85	11.25	9.50
June	11.75	9.37	10.75	11.85	11.25	9.75
July	12.62	9.60	11.00	12.00	11.85	10.90

COMPOSITE PIG IRON.

Computation for August 1, 1915:

One ton Bessemer, valley	14.75
Two tons basic, valley (1,000)	26.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.50
One ton No. 2X foundry, Buffalo	15.25
One ton No. 2 foundry, Cleveland	13.50
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry, Cincinnati (12,000)	25.80
Total, ten tons	133.55

One ton 13.355

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17,140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	13.026
June	14.032	14.005	14.968	13.606	13.047
July	13.926	14.288	14.578	13.520	13.125
Aug.	13.874	14.669	14.565	13.516	.....
Sept.	13.819	15.386	14.692	13.503	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

**UNFINISHED STEEL
AND IRON BARS.**

(Averaged from daily quotations.)

Sheet
Billets. bars. Rods. — Iron bars deliv.
Pitts. Pitts. Pitts. Phila. Pitts. Ch'go.

1914—

Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug.	20.17	21.08	25.25	1.18	1.25	1.07
Sep.	20.75	21.75	26.00	1.18	1.20	1.07
Oct.	20.00	20.70	26.00	1.14	1.20	1.01
Nov.	19.25	19.75	25.00	1.13	1.20	.96
Dec.	18.75	19.25	24.40	1.12	1.20	.91
Year	20.06	20.82	25.50	1.20	1.27	1.07

1915—

Jan.	19.25	19.75	24.80	1.12	1.20	.97
Feb.	19.25	19.75	25.00	1.12	1.20	1.03
Mar.	19.30	19.80	25.00	1.13	1.20	1.10
Apr.	19.50	20.00	25.00	1.18	1.20	1.14
May	19.50	20.00	25.00	1.18	1.20	1.15
June	20.00†	20.50†	25.00	1.20	1.20	1.17
July	21.00†	21.90†	25.75	1.21	1.20	1.20

* Premiums for Bessemer.

† Premiums for open-hearth.

CAR BUYING.

Freight cars ordered:

First half 1913	114,000
Second half 1913	33,000
Year 1913	147,000
January 1914	10,000
February	13,000
March	8,000
April	10,000
May	10,000
June	15,000
July	7,000
August	3,100
September	95
October	1,725
November	550
December	1,150
Year, 1914	80,000
January 1915	3,300
February	4,255
March	1,287
April	3,000
May	20,210
June	20,864
July	5,675
Seven months	61,916

BRITISH EXPORTS.

According to the Board of Trade returns,
in tons of 2,240 pounds:

1914—	Pig iron.	Rails.	Tin Plate.	Total*
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	366,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct. ..	47,188	37,005	26,950	263,834
Nov. ...	49,666	16,181	30,942	240,617
Dec. ..	31,705	16,315	30,254	212,667
Year ..	90,405	435,440	435,497	3,977,468
1915—				
Jan. ...	21,138	24,411	29,216	230,204
Feb. ..	21,934	14,877	25,101	198,804
Mar. ..	20,172	17,572	36,170	239,342
Apr. ..	35,209	21,602	40,135	264,244
May ..	29,342	21,776	32,727	267,524
June ..	39,127	23,728	33,986	272,195

* Includes scrap, pig iron, rolled iron and steel cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

OUR FOREIGN TRADE.

Value of merchandise imports and exports, and favorable trade balance, calendar years.

	Imports.	Exports.	Balance.
1900	\$829,149,714	\$1,477,946,113	\$648,796,399
1901	880,419,910	1,465,375,860	584,955,950
1902	989,316,870	1,360,685,933	391,369,063
1903	995,494,327	1,484,753,083	489,258,756
1904	1,035,909,190	1,451,318,740	415,409,550
1905	1,179,144,550	1,626,990,795	447,846,245
1906	1,320,501,572	1,798,243,434	477,741,862
1907	1,423,169,820	1,923,426,205	500,256,385
1908	1,116,374,087	1,752,835,447	636,461,360
1909	1,475,520,724	1,728,198,645	252,677,921
1910	1,562,904,151	1,866,258,904	303,354,753
1911	1,532,359,160	2,092,526,746	560,167,586
1912	1,818,133,355	2,399,217,993	581,084,638
1913	1,792,596,480	*2,484,018,292	*691,421,812
1914	*1,789,276,001	2,113,624,059	324,348,049
1913—			
Jan.	163,063,438	227,032,930	63,969,492
Feb.	149,913,918	193,996,942	44,083,024
Mar.	155,445,498	187,426,711	31,981,213
April	146,194,461	199,813,438	53,618,977
May	133,723,713	194,607,422	60,883,709
June	131,245,877	163,404,916	32,159,039
July	139,061,770	160,990,778	21,929,008
Aug.	137,651,553	187,909,020	50,257,467
Sept.	171,084,843	218,240,001	47,155,158
Oct.	132,949,302	271,861,464	138,912,162
Nov.	148,236,536	245,539,042	97,302,506
Dec.	*184,025,571	233,195,628	49,170,057
1914—			
Jan.	154,742,923	204,066,603	49,323,680
Feb.	148,044,776	173,920,145	25,875,369
Mar.	182,555,304	187,499,234	4,943,930
April	173,762,114	162,552,570	†11,209,544
May	164,281,515	161,732,619	†2,548,896
June	157,529,450	157,072,044	†457,406
July	150,677,291	154,138,947	†5,538,344
Aug.	129,767,890	110,367,494	†19,400,396
Sept.	139,710,611	156,052,333	16,341,722
Oct.	138,080,520	194,711,170	56,630,650
Nov.	126,467,062	205,878,333	79,411,271
Dec.	114,656,545	245,632,558	130,976,013
1915—			
Jan.	122,265,267	267,801,370	145,536,103
Feb.	125,123,391	*298,727,757	*173,604,366
Mar.	158,022,016	296,501,852	138,479,836
Apr.	160,576,106	294,746,117	134,170,011
May	142,284,851	273,769,093	131,484,242
June	157,746,140	268,601,599	110,855,459

* High record.

† Balance unfavorable.

STEEL MAKING PIG AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. ...	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. ...	14.225	13.60	13.059	12.50
Mar. ...	14.1667	13.60	13.041	12.50
April ...	14.00	13.60	13.00	12.50
May	14.00	13.659	13.00	12.65
June	14.00	13.75	13.00	12.724
July	14.00	13.991	13.00	12.959
Aug.	14.00	.....	13.00	.....
Sept.	14.00	.....	13.00	.....
Oct.	13.9375	.....	12.85	.....
Nov.	13.6375	.....	12.477	.....
Dec.	13.75	.....	12.50	.....
Year ..	13.9793	.....	12.854	.....

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February.	1.4831	1.1590	1.024
March-April	1.5430	1.176	1.087
May-June	1.5272	1.1257	*1.10
July-August	1.5029	1.0928	
September-October	1.3931	1.0847	
November-Dec'ber	1.2030	1.037	
Year's average	1.4421	1.1125	

* Settlement basis

PIG IRON PRODUCTION.

Rates per annum, including charcoal pig.

January, 1913	31,275,000
February	34,050,000
March	32,900,000
April	33,850,000
May	32,500,000
June	32,300,000
July	30,500,000
August	30,100,000
September	30,800,000
October	30,350,000
November	27,500,000
December	23,700,000
January, 1914	22,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000
March	24,600,000
April	26,000,000
May	26,800,000
June	29,250,000
July	30,300,000
On August 1st	31,800,000

Actual production:

1900	10,789,242
1910	27,603,567
1913	30,966,152
1914	25,000,244

TIN.

THE TIN SITUATION.

The record of the tin market in July has been one of steady and almost continuous daily decline, from 39¼c for spot Straits at the opening of the month to 35¼c at the close. The foreign market was more or less the same story, from £172 London to £155. Business has been very limited in London, where speculation has entirely disappeared, and is likely to remain dormant while the war lasts. Also as tin does not enter into war munitions, the metal has felt the depression and more or less disorganization of industries abroad like those consuming the metal that are dependent on ordinary peace conditions. In fact, many foreign factories using Tin, including some of the tinplate mills, have turned some of their activities to making war munitions. In England it is a case in business of "nothing as usual". No one wants to think of or do business outside of war necessities. The war and its effects is absorbing the thoughts of everybody. England is now feeling as never before the effects of the war, and it is very disturbing and absolutely destructive of all interest in business undertakings or operations except as we said before those on which the fortunes of war depend.

The market has also been depressed by an accumulation of Bolivian Concentrates in Liverpool, estimated at 9,000 tons (about 55% pure) which were formerly smelted in Germany, and which it is now proposed to be smelted in England and America. In the former case the scarcity of labor and slowness in smelting preparation has retarded operations. In America a smelter is being erected by the American Smelting & Refining Company to treat these ores and will be in operation at the end of this year.

When we turn to the Tin situation in America conditions are very different and found to be very good. Consumption has increased and is running at a high record.

The past three months' deliveries in America compared with the same months last year show how heavy the increase has been in American tin consumption lately,

namely:

	Tons
1915	
May	5,600
June	3,900
July	5,300
Total	14,800

As against

	Tons
1914	
May	3,800
June	3,650
July	3,900
Total	11,350

an increase of 3,450 tons for said three months!

From now on the comparison with same

TIN PRICES IN JULY.

New York. — London —

Day.	Cents.	Prompts.	Futures.
		£ s d	£ s d
1	39.25	170 10 0	167 10 0
2	39.00	170 10 0	166 0 0
3			
4			
5		172 10 0	168 0 0
6	39.25	171 10 0	167 0 0
7	39.00	170 10 0	166 0 0
8	38.62½	170 0 0	165 10 0
9	38.95	172 0 0	166 10 0
10			
11			
12	38.75	171 15 0	165 10 0
13	38.50	172 10 0	166 5 0
14	38.00	171 10 0	165 10 0
15	37.75	170 0 0	163 15 0
16	37.62½	170 0 0	162 0 0
17			
18			
19	37.25	167 15 0	162 0 0
20	36.50	164 10 0	160 10 0
21	36.87½	165 15 0	161 15 0
22	36.87½	165 0 0	162 0 0
23	36.50	162 10 0	160 5 0
24			
25			
26	36.12½	161 15 0	159 10 0
27	36.00	161 5 0	160 0 0
28	35.75	160 5 0	160 0 0
29	35.75	158 15 0	158 15 0
30	35.12½	155 0 0	155 15 0
31			
High	39.25	172 10 0	168 0 0
Low	35.12½	155 0 0	155 15 0
Average	37.498	167 1 7	163 4 6

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.

	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,785
May	15,938	14,345	13,710	17,862	14,646
June	16,605	12,920	11,101	16,027	15,927
July	16,707	13,346	12,063	14,167	16,084
Aug.	16,619	11,285	11,261	14,452	.....
Sept.	16,672	13,245	12,943	14,613	.....
Oct.	14,161	10,735	11,857	10,894	.....
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	5,270
May	4,965	4,310	5,760	6,160	6,900	6,759
June	4,120	5,050	4,290	4,820	5,870	6,665
July	5,010	4,660	4,580	4,770	4,975	5,606
Aug.	5,700	4,680	5,210	6,030	3,315	.....
Sept.	4,220	5,150	5,430	5,160	4,973	.....
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,875
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	3,200
May	3,600	3,400	4,250	3,350	3,800	5,600
June	5,000	2,900	2,850	3,800	3,650	3,000
July	3,800	4,300	5,150	3,900	3,900	5,300
Aug.	3,700	3,800	4,300	3,600	2,900	.....
Sept.	3,300	4,200	3,600	3,100	3,600	.....
Oct.	3,350	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	July	June	July.
1915.	1915.	1914.	1914.
Straits shipments	1915.	1915.	1914.
To Gt. Britain	2,746	2,750	2,125
" Continent	785	860	1,170
" U. S.	2,505	3,075	680
Total from Straits	5,606	6,685	4,475
Australian shipments			
To Gt. Britain	171	141	194
" U. S.	nil	nil	nil
Total Australian.	171	141	194
Consumption			
London deliveries	1,915	2,009	1,719
Holland deliveries	148	100	182
U. S.	3,900	3,900	3,900
Total	5,663	6,009	6,601
Stocks at close of month.			
In London			
Straits, Australian	1,573	1,580	1,765
Other kinds	1,409	800	2,712
In Holland	41	62	276
In U. S. excl. Pacific	991	2,319	1,297
Total	4,014	4,761	5,648
Straits about. close of month			
To London	4,025	2,256	3,221
Banca and Billiton			
To London	345	520	183
Total London	4,370	2,776	3,404
To United States			
Straits	7,300	7,245	
Banca	400	165	
Total U. S.	7,700	7,410	2,115
Grand total	12,070	11,186	5,519
	July 31.	June 30.	July 31.
Total visible supply	1915.	1915.	1914.
	16,084	15,927	14,167

STRAITS TIN PRICES IN NEW YORK.

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.93
Apr.	42.20	44.02	49.12	36.10	47.97
May	43.10	46.12	49.14	33.30	38.78
June	46.16	47.77	44.93	30.65	40.77
July	42.96	44.75	50.52	31.75	47.50
Aug.	43.45	45.87	41.72	30.59 1/2	.....
Sept.	39.98	40.18	42.47	32.79	.....
Oct.	41.21	50.11	40.50	30.39 1/2	.....
Nov.	43.13	49.90	39.81	33.50	.....
Dec.	44.97	49.90	37.64	33.60	.....
Year	42.68	46.43	44.32	35.70	.....

TIN — COPPER

time last year is going to be even greater, as at this time last year, with the outbreak of the war, a severe decrease in American consumption set in, and for the remaining five months of the year our deliveries only averaged 2,940 tons. If indications go for anything we are likely to average over 4,000 tons monthly for the balance of the year.

There must be a still greater falling off in English and European consumption and interest, and greater increase in output than we have yet seen, if between now and the end of the year a serious reduction in visible does not take place.

Present price and visible supply compare with the average price and visible supply for former years as follows:—

	Average Price	Average Vis. Supply
1915 to date	40.73	14,810 tons
For 1914	35.70	14,907 "
1913	44.32	12,377 "
1912	46.43	13,297 "
1911	42.68	16,404 "
1915 August 1st	35.00	16,084 "

It would seem from the above that tin is cheap at present prices. There is no prospect of any substantial increase in production. Were it not for the upset conditions financially and otherwise abroad, the situation especially the American outlook would, we think, be being exploited today by the London operators, and the trade knows from past experience what they can do in this direction.

American consumers are keeping themselves well bought ahead, and carrying fair stocks, partly on account of low prices, but principally for protection against any trouble arising in ocean transportation. This policy is a wise one and is sure to be continued.

Instead of the bulk of the Tin reaching us from the Straits going through London, shipments are coming direct, and this is also responsible for the small transactions in London and absence of speculation and manipulation there. It is a new experience for the Tin market to be a proposition of trading between the Consumer and the Producer without the intervention of London and it is largely this today. Everything considered present low prices and lack of interest is largely

physiological, although not of course so much so as a year ago when on the outbreak of war and fear of supplies be interrupted Tin advanced with great excitement in a rush, from 33½c to 65c, the highest price on record.

COPPER SITUATION.

The month of July has been one of dullness and stagnation which is partly natural considering the very heavy buying in the previous month, but there must be found other reasons than this to explain the steady daily decline in prices that took place during the month, without a single reaction, Electrolytic from 19.62½c to 18.25c, these prices representing sales from second hands.

During the entire month the producers' price has ranged at ¼c to ¾c above the open market, since there was no business offering to cause them to compete with outside sellers, so to a great extent it has been a nominal market throughout the month.

In our report last month we said:

"We believe that the war demand has reached the maximum, and we therefore believe that the copper market has reached the top, at any rate for the time being. It is a question whether there are facilities to use any more copper either in this country or in England or France than is being used at present, and as the production of the metal can be further enlarged, the market would be doing well to maintain itself at a 20c level. Copper is certainly very high, and no such prices have been seen in the present generation except during the boom of 1906-7. The average price of copper for the past 30 years was about 13.15c, so the price is now 50% above the average. This fact is likely to impress itself on buyers, and it is a safe calculation that neither consumers nor dealers will be willing to carry large stocks, or will be willing to buy ahead with the same freedom as they did during the earlier months of the year."

The experience of the past month has so far justified this view, and what we said

COPPER.

then is still true, and we believe will still be further shown in the future.

It is to be noted that the decline of the past month has taken place in the face of the continued improvement in price, also increase in operations of the iron and steel trade, which is from being as low as around 30% of normal has now reached over 90% to 95%. This would be a bull point on copper were it not for the previous heavy advance that has in the past few months taken place, and which it will be remembered, was the result of war orders

coming on a production that had been cut in half.

At present, production has been restricted to the largest in the history of the country, our exports are showing a falling off as the table given elsewhere shows. War orders are enormous and factories running night and day on this, but industries connected with ordinary home demand are below normal and we believe if there were any American statistics available today, they would show that stocks in producers' hands have increased quite largely last month, and unless some change in production or consumption takes place will continue to increase. It requires no great foresight to see that with the 200,000 tons we used to ship to Germany annually cut off, and our production larger than ever, and our home peace consumption below par, it will require larger war orders than we have been getting in the past to keep a steady market at present prices.

The following firm, a foreign correspondent, shows the unsatisfactory consumption of the metal outside of war orders, is even more pronounced in Europe, he says:

"There is no disguising the fact that the sentiment in copper is not so good as it was. People recognize the demand for war purposes, but they say that in face of the serious statements of the government, the makers of copper for other purposes, already of course suffering from a dwindling trade, will find their trade almost disappearing altogether, and all supplies with them to be left free for munitions. But

COPPER PRICES IN JULY.

— New York — London.

Day.	Lake. Cents.	Electro. Cents.	Casting. Cents.	Standard. £ s d
1	19.87½	19.62½	18.62½	80 5 0
2	19.87½	19.62½	18.37½	79 2 6
3	.....	.....	.....	.....
4	.....	.....	.....	.....
5	.....	.....	.....	79 15 0
6	19.87½	19.62½	18.37½	79 15 0
7	19.87½	19.62½	18.37½	78 15 0
8	19.87½	19.62½	18.25	77 15 0
9	19.75	19.50	18.25	77 12 6
10	.....	.....	.....	.....
11	.....	.....	.....	.....
12	19.75	19.37½	18.12½	77 12 6
13	19.75	19.43¾	18.18¾	78 5 0
14	19.75	19.37½	18.12½	78 0 0
15	19.50	19.42½	17.75	76 10 0
16	19.50	19.06¼	17.56¼	75 15 0
17	.....	.....	.....	.....
18	.....	.....	.....	.....
19	19.37½	19.00	17.50	74 10 0
20	19.37½	19.00	17.50	74 10 0
21	19.37½	19.00	17.50	75 15 0
22	19.25	18.87½	17.50	75 7 6
23	19.12½	18.75	17.37	74 10 0
24	.....	.....	.....	.....
25	.....	.....	.....	.....
26	19.00	18.62½	17.25	74 15 0
27	18.75	18.37½	17.12½	72 5 0
28	18.75	18.37½	17.12½	72 0 0
29	18.75	18.37½	17.12½	71 5 0
30	18.75	18.31¼	17.06¼	71 5 0
31	.....	.....	.....	.....
High	20.00	19.75	18.75	80 5 0
Low	18.50	18.25	17.00	71 5 0
Avg'e.	19.423	19.08	17.785	76 0 2

WATERBURY COPPER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87½	14.50	17.00	14.75	14.12½
Feb.	12.75	14.50	15.50	15.12½	15.25
Mar.	12.50	15.00	15.12½	15.00	15.75
Apr.	12.50	16.00	15.75	14.87	18.50
May	12.37½	16.37	15.87	14.75	22.50
June	12.62½	17.50	15.37	14.37	22.50
July	12.75	17.75	14.75	14.12	22.25
Aug.	12.75	17.75	15.62	13.00	.....
Sept.	12.62½	17.87	16.87	12.87	.....
Oct.	12.50	17.75	16.87½	12.25	.....
Nov.	12.87½	17.75	16.25	12.25	.....
Dec.	13.87½	17.75	15.00	13.50	.....
Av..	12.75	16.71	15.83	13.91	.....

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37½	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.27	15.73	14.44	18.81
June	12.63	17.43	15.08	14.15	19.92
July	12.72	17.37	14.77	13.73	19.42
Aug.	12.70	17.61	15.79	12.68	.....
Sept.	12.57	17.69	16.72	12.44	.....
Oct.	12.47½	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av..	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.57½
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	18.60
June	12.55	17.29	14.85	13.81	19.71
July	12.62½	17.35	14.57	13.49	19.08
Aug.	12.57½	17.60	15.68	12.41½	.....
Sept.	12.39	17.67	16.55	12.09	.....
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50½	14.47	12.93	.....
Av..	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of **Casting Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.33	14.18	16.48
May	12.08	16.01	15.45½	14.00	17.41
June	12.40	17.08	14.72	13.65	18.74
July	12.49½	17.09	14.40½	13.34½	17.76
Aug.	12.42	17.35	15.50	12.27	.....
Sept.	12.23	17.51	16.37½	12.00	.....
Oct.	12.21	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56½	17.34	14.22	12.83½	.....
Av..	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since September 1, 1914 are given in the following table together with the price of Lake copper on the same dates:

1914—	Sheet Copper.	Lake Copper.
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19	17.00	12.25
November 23	17.50	12.62½
December 1	18.00	12.90
December 15	18.50	13.50
1915—		
January 16	18.75	13.75
January 21	19.00	14.12½
January 25	19.50	14.37½
January 29	19.75	14.62½
March 22	20.25	15.12½
March 25	20.50	15.43½
March 27	20.75	15.75
April 8	21.00	16.50
April 13	21.25	16.62½
April 14	21.50	16.75
April 17	22.00	17.00
April 19	22.50	17.62½
April 22	23.00	18.00
April 28	24.00	18.93¾
June 8	24.50	19.62½
June 9	25.00	19.87½
July 27	24.50	18.87½
July 31	24.00	18.75

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914	1915.
January	31,229	25,026	36,018	26,193
February	31,894	26,792	34,634	15,583
March	27,074	42,428	46,504	30,148
April	22,591	33,274	35,079	18,738
May	32,984	38,601	32,077	28,889
June	26,669	28,015	35,182	16,976
July	26,761	29,596	34,145	*13,308
August	29,526	35,072	16,509	.....
September	25,572	34,356	19,402	.....
October	25,020	29,239	23,514	.....
November	19,171	29,758	24,999	.....
December	29,474	30,653	22,166	.....
Total	327,965	382,810	360,229	.....

* Includes only exports from Atlantic ports.

COPPER — LEAD

as Standard copper cannot be used for munitions, it would tend to increasing stocks, and what we are facing is all Refined copper going to one source of consumption only, namely, munitions, and Standard copper accumulating in store. Finally, big as the government requirements will be, there is reason to think they have a good deal of captured copper to use which has not yet been released by the Prize Court. Negotiations must come at some time between the government, direct or indirect, and your producers as to a steady supply of Refined, and they may result in high prices being paid, because governments are proverbially expensive buyers, but for all that it will be a constant drag on the market if stocks begin to accumulate in Europe, even though they only be largely of Standard copper."

The price of spot Standard in London is now £14 15s per ton below the price of Electrolytic and has been lately the greatest backwardation ever known. Ordinarily Standard copper is £4 to £5 below Electrolytic, but due to the lack of speculation in England and the increase in the supplies of lower grades than Electrolytic, the spread has increased to three times what it normally is. The increase in the spread is shown in the following table:

	Electro.			Standard.			Spread.		
1915 —	£	s	d	£	s	d	£	s	d
Jan. 7	62	5	0	58	15	0	3	10	0
Feb. 5	68	0	0	67	7	6	5	12	6
Mar. 5	69	5	0	63	10	0	5	15	0
April 7	76	15	0	70	5	0	6	10	0
May 7	88	0	0	79	10	0	8	10	0
June 7	92	0	0	83	0	0	9	0	0
July 7	93	0	0	78	15	0	14	15	0
Aug. 3	87	0	0	72	10	0	14	10	0

This backwardation has also been caused by the embargo that has existed in shipments of copper from England. However, lately permission has been given for shipments of Standard grades to this country for refining purposes, on the guarantee that when refined the metal is returned to England. While this may improve the price of Standard it has no direct effect on the

Electrolytic market except that these conversion deals will supply England with so much Electrolytic for war purposes without being obliged to make first purchases.

The future of the copper market in our opinion depends on a very heavy increase in present consumption here and abroad for purposes not connected with war orders. If it is not forthcoming with a heavy increase in home consumption, demand for copper must go lower.

LEAD SITUATION.

After the extraordinary and sensational advance last month from 4.90c New York to 5.62½c and collapse to 5.40c, with recovery to 5.70c, the market in July has been a completely dead affair and business at a complete standstill. During the entire month the Trust has kept their price unchanged at 5.75c New York, but without having much effect in restoring confidence, and the outside market has steadily ruled under the Trust price at from \$1 to \$2 per ton early in the month to \$5 per ton at the close.

This caused a reduction by the Trust of \$5 per ton on the last day of the month, but outside interests instantly cut the new price \$2 per ton, and market closes with every indication that it is only a question of time when there must be further and perhaps radical reductions in price before confidence and buying will be restored.

The enormous advance in June will go

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	4.35	4.11	3.74	4.20	3.99	3.57
Feb.	4.35	4.06	3.82	4.20	3.95	3.72
Mar.	4.35	3.97	4.03	4.21	3.83	3.98
Apr.	4.40	3.82	4.19	4.25	3.70	4.11
May	4.36	3.90	4.23	4.22	3.81	4.16
June	4.35	3.90	5.86	4.21	3.80	5.76
July	4.37	3.90	5.74	4.25	3.75	5.52
Aug.	4.63	3.90	..	4.56	3.71	..
Sep.	4.75	3.86	....	4.62	3.67	..
Oct.	4.45	3.54	..	4.31	3.39	..
Nov.	4.34	3.68	..	4.18	3.58	..
Dec.	4.06	3.80	..	3.94	3.67	..
Av.	4.40	3.87	..	4.26	3.74	..

* Trust price.

LEAD. — ANTIMONY

into history as the most absurd and unjustifiable advance that ever took place in an important commodity. The punishment following it has been sudden and severe, and the metal must suffer from it for some time to come, and it is not unlikely that in the meantime it may go below its real value, consumption and production considered.

LEAD PRICES IN JULY.

Day.	New York.*	St. Louis.	London.
	Cts.	Cts.	£ s d
1	5.70	5.65	25 15 0
2	5.70	5.65	24 17 6
3			
4			
5			24 3 9
6	5.72 ¹ / ₂	5.65	24 3 9
7	5.70	5.62 ¹ / ₂	24 7 6
8	5.65	5.57 ¹ / ₂	23 17 6
9	5.65	5.57 ¹ / ₂	24 10 0
10			
11			
12	5.67 ¹ / ₂	5.57 ¹ / ₂	25 10 0
13	5.62 ¹ / ₂	5.55	25 3 9
14	5.60	5.52 ¹ / ₂	25 2 6
15	5.60	5.52 ¹ / ₂	25 1 3
16	5.55	5.52 ¹ / ₂	24 16 3
17			
18			
19	5.55	5.52 ¹ / ₂	24 13 9
20	5.55	5.52 ¹ / ₂	24 17 6
21	5.55	5.52 ¹ / ₂	24 13 9
22	5.55	5.52 ¹ / ₂	24 12 6
23	5.55	5.47 ¹ / ₂	24 10 0
24			
25			
26	5.55	5.42 ¹ / ₂	24 10 0
27	5.55	5.42 ¹ / ₂	24 7 6
28	5.55	5.40	24 7 6
29	5.50	5.37 ¹ / ₂	23 17 6
30	5.40	5.30	23 10 0
31			
High	5.75	5.67 ¹ / ₂	25 15 0
Low	5.40	5.30	23 10 0
Average ...	5.594	5.52	24 12 2

* Outside market.

ANTIMONY SITUATION.

The market has been a very dull and quiet one. Although supplies are only available from China and Japan and although the Russian demands for shipment from these countries have been large, still supplies reaching us have been, if anything, more than ample for our requirements, and prices have steadily declined from 37c at the opening of the month to 34³/₄c at the close with every indication that the recession in price will be gradually continued.

No one will speculate or carry stocks at present prices, which are nearly seven times what they were before the outbreak of war. There have been some good sized orders placed during the month for shipment from the Orient, at around 30³/₄c to 31c in bond, but these orders must continue in good volume to keep the foreign market steady. The embargo on all shipments from England continues.

COMPOSITE METAL PRICES.

Computation for August 2, 1915:

Pounds.	Metal.	Price.	Extension.
2 ¹ / ₂	Spelter (St. Louis)	17.87 ¹ / ₂	44.687
4	Lead (St. Louis)	5.15	20.600
3	Copper (Electro)	18.12 ¹ / ₂	54.375
¹ / ₂	Tin (New York)	35.00	17.500
10 pounds			137.162
One pound			13.716

Monthly averages.

	1912.	1913.	1914.	1915.
January	9.778	10.987	9.105	8.836
February ...	9.677	10.260	9.294	9.878
March	9.886	10.024	9.026	10.977
April	10.277	10.198	8.844	11.977
May	10.468	10.163	8.668	13.063
June	11.014	9.648	8.431	15.771
July	11.043	9.398	8.345	14.939
August	11.092	10.025	9.111	.....
September ..	11.575	10.350	8.067	.....
October	11.596	10.029	7.500	.....
November ..	11.372	9.590	7.873	.....
December ...	11.219	9.053	8.400	.....
Year	10.750	9.977	8.555	.....

ANTIMONY — ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	32.07
May	9.48	8.00	8.77	7.29	39.75
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av..	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Hallett's antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	29.41
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av..	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY.

Average monthly price of Chinese and Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93½
Apr.	8.34	6.87	7.82	5.82	23.97
May	8.06	6.98	7.75	5.78	34.71
June	7.38	7.07	7.62	5.62½	36.53
July	7.32	7.37	7.55	5.44	35.98
Aug.	7.22	7.58	7.48	13.05	.....
Sep.	7.13	8.00	7.31	9.79½	.....
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Av..	7.48	7.63	7.43	8.33½	.....

ALUMINUM, SILVER and ANTIMONY PRICES IN JULY.

Day.	Aluminum. — Silver — Antimony*			
	N. Y. Cents.	N. Y. Cents.	London. Pence.	N. Y. Cents.
1 ..	32.50	48	23½	37.00
2 ..	32.50	48	23½	37.00
3 ..	.....	48	23½	.....
4 ..	.....	.....	23½	.....
5 ..	32.50	48	23½	37.00
6 ..	32.50	47	23½	36.75
7 ..	32.50	47	23½	36.75
8 ..	32.50	47	23½	36.75
9 ..	32.50	47	23½	36.75
10 ..	.....	47	23½	.....
12 ..	32.50	47	23½	36.75
13 ..	32.50	47	23½	36.00
14 ..	32.50	47½	23½	36.00
15 ..	32.50	47½	23½	36.00
16 ..	32.50	47½	23½	35.87½
17 ..	.....	47½	23½	.....
19 ..	32.50	47½	23½	35.75
20 ..	32.50	47½	23½	35.75
21 ..	32.50	47½	23½	35.75
22 ..	32.50	47½	23½	35.75
23 ..	32.50	47½	23½	35.75
24 ..	.....	47½	23½	.....
26 ..	32.50	47½	23½	35.50
27 ..	32.50	47½	23	35.50
28 ..	32.50	47½	23½	35.25
29 ..	32.50	46½	23½	35.25
30 ..	32.50	47½	23½	34.87½
31 ..	.....	47½	23½	.....
High	33.00	48½	23½	37.25
Low	32.00	46½	22½	34.87½
Av..	32.50	47.519	22.597	35.976

* Chinese and Japanese.

ALUMINUM AND SILVER PRICES.

	New York					
	—Aluminum—			—Silver—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.93	57.56	48.89½
Feb.	26.20	18.80½	19.20	61.64	57.50½	48.48
Mar.	26.72	18.30	18.95	57.87	58.07	50.24
Apr.	26.91	18.08	18.83	59.49	58.52	50.25
May	25.95	17.93	21.85	60.36	58.18	49.91
June	24.79	17.82	20.66	58.99	56.47	49.07
July	23.34	17.59	32.50	58.72	54.68	47.92
Aug.	22.73	20.38	.....	59.29	54.34	.....
Sep.	22.00	19.28½	.....	60.64	53.29	.....
Oct.	20.32	18.25	.....	60.79	50.65	.....
Nov.	19.49	18.83	.....	58.99	49.10	.....
Dec.	18.85	19.02	.....	57.76	49.38	.....
Av.	23.67	18.59½	.....	59.79½	54.81	.....

SPELTER.

SPELTER SITUATION.

Like every metal this month the market has been a declining one, and in the case of spelter more so on account of the previous high prices.

Opening at 21¾c f.o.b. East St. Louis there was for a few days a firm market, in advance to 22½c, but since then a steady and continuous decline has set in, the month closing at 17½c, and at the close giving every indication of going much lower. The feature has been the reselling by consumers who were proved to be overbought, and suffering from the complete demoralization into which the galvanized sheet iron trade has been thrown by recent sensational high prices.

The situation is a dangerously interesting one, and we have discussed it fully elsewhere in this issue under the heading of "The Case of Spelter" to which we refer our readers.

There is a good demand for high grades for ammunition purposes, which continue to command all kinds of prices according to purity of metal and the lead contents, and there promises to be a continued demand for all the metal of this grade that can be produced. The producers for these grades are sold away into the future, and the enormous profits obtainable are creating extraordinary efforts to increase the supply which from metallurgical reasons is more or less limited.

But ordinary Prime Western does not enter to any extent in war munitions, and with the enormous output at present and the heavy increase to come into sight from new smelters under course of construction, and the demoralized state of the galvanized iron industry, it will be remarkable if the market does not continue to decline and perhaps very sharply. It is our opinion that long before some of the new smelting capacity becomes operative, it will be shown that the country cannot possibly absorb even with continued war orders and a normal home demand, the amount that will be offered for sale. In fact, there are signs that we have already entered into this stage. If so a heavy decline in price must come. There has been very little new

buying during the month, and but for the fact that producers as a rule have been well booked on future contracts, and out of the market, the decline in July would have been greater than it has been.

The market closes with every indication of going lower and buyers are particularly shy of futures, whereas in June there did not seem any limit to their purchases.

SPELTER PRICES IN JULY.

Day.	New York.	St. Louis.	London.
	Cts.	Cts.	£ s d
1	22.25	21.75	100 0 0
2	22.25	21.75	100 0 0
3			
4			
5			100 0 0
6	22.25	21.87½	100 0 0
7	22.50	22.25	100 0 0
8	22.87½	22.62½	100 0 0
9	22.75	22.50	100 0 0
10			
11			
12	22.37½	22.12½	100 0 0
13	22.00	21.75	100 0 0
14	21.87½	21.62½	100 0 0
15	21.50	21.25	100 0 0
16	21.00	20.75	96 0 0
17			
18			
19	20.50	20.25	96 0 0
20	20.50	20.25	96 0 0
21	20.37½	20.12½	96 0 0
22	20.00	19.75	96 0 0
23	19.75	19.50	96 0 0
24			
25			
26	18.87½	18.75	93 10 0
27	18.62½	18.37½	92 10 0
28	18.37½	18.12½	92 10 0
29	18.12½	17.87½	92 10 0
30	18.12½	17.87½	92 10 0
31			
High	23.00	22.75	100 0 0
Low	18.00	17.75	92 10 0
Average	20.803	20.53	97 5 0

SPELTER.

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc since the beginning of 1915 together with the price of spelter ruling on the same day.

1915—	Sheet Zinc.	Spelter St. Louis.
January 19	9.25	6.10
January 21	9.50	6.75
January 26	10.00	7.31 1/4
February 2	10.50	7.87 1/2
February 8	11.00	7.95 3/4
February 8	11.50	8.00
February 12	12.00	8.25
February 19	12.50	9.25
March 1	13.00	10.25
March 5	13.50	11.00
April 22	15.75	12.12 1/2
April 23	14.50	12.37 1/2
April 27	15.50	13.75
April 28	16.00	13.75
April 30	17.50	13.75
May 18	18.50	15.12 1/2
May 20	19.50	16.00
May 25	20.00	18.75
May 26	22.00	19.25
May 29	24.50	20.75
June 1	26.00	22.50
June 3	30.00	26.00
June 9	33.00	25.75
June 14	30.00	22.75
June 23	27.00	18.25
July 27	24.00	18.37 1/2

SPELTER (Monthly Averages.)

	—New York—			—St. Louis—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	7.23	5.33	6.52	7.01	5.11	6.33
Feb.	6.49	5.46	8.86	6.25	5.27	8.61
Mar.	6.29	5.35	10.12 1/2	6.08	5.15	9.80
Apr.	5.79	7.22	11.51	5.59	7.05	11.22
May	5.51	5.16	15.87	5.31	4.96	17.52
June	7.22	5.12	22.67	5.05	4.95	22.14
July	5.41	5.03	20.80	5.22	4.84	20.53
Aug.	5.80	5.63	...	5.64	5.45	...
Sep.	5.83	5.52	...	5.65	5.35	...
Oct.	5.47	4.99 1/2	...	5.27	4.81	...
Nov.	5.24	5.15	...	5.15	4.97	...
Dec.	5.22	5.67	...	5.03	5.49	...
Av.	5.80	5.30	...	5.61	5.11 1/2	...

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	5.77	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.70	11.85
Mar.	6.01	7.17	6.56	5.59	12.15
Apr.	5.85	7.07	6.08	5.50	13.85
May	5.76	7.13	5.77	5.28	20.55
June	5.89	7.25	5.50	5.37	25.60
July	6.11	7.46	5.61	5.26	24.90
Aug.	6.29	7.34	5.99	5.66	...
Sep.	6.29	7.72	6.13	5.91	...
Oct.	6.49	7.83	5.74	5.23	...
Nov.	6.90	7.74	5.60	5.38	...
Dec.	6.81	7.65	5.44	5.90	...
Av...	6.16	7.33	6.06 1/2	5.53 1/2	...

1915 Promises Good Mineral Output.

(Continued from page 349)

tion has fallen off. The six months output of copper in New Mexico was probably equal to one-half last year's total output, so that there is good expectation of a better total for the year. Arizona, as a copper State, has shown the usual improvement during the six months, while the gold mines promise a record-breaking year. No large increase in Arizona's output of lead or zinc is expected in 1915 over other years. In California some gain in gold yield is reported and copper conditions are much improved over last year. Oregon shows a slight increase in gold output; while in Alaska the outlook is good for increased output of copper as well as gold. More Alaska mines are on a producing basis this year and more dredges are in operation.

SPELTER PRICES IN ST. LOUIS.

Extreme fluctuations of Prime Western Spelter, East St. Louis delivery, by months and years.

	— 1914 —			— 1915 —		
	High.	Low.	Avg.	High.	Low.	Avg.
Jan.	5.25	5.10	5.14	7.02	5.57	6.33
Feb.	5.45	5.20	5.37	10.00	7.65	8.62
Mar.	5.22 1/2	5.12 1/2	5.15	11.00	8.87 1/2	9.80
Apr.	5.12 1/2	4.85	5.03	14.00	9.25	11.22
May	5.51	5.16	15.82	5.31	4.96	17.52
June	4.97	4.82	4.93	27.00	17.50	22.14
July	4.95	4.80	4.84	22.75	17.75	20.53
Aug.	6.00	4.70	5.45	...	...	...
Sep.	5.85	4.95	5.35	...	...	...
Oct.	5.00	4.60	4.81	...	...	...
Nov.	5.20	4.80	4.97	...	...	...
Dec.	5.65	5.20	5.42	...	...	...
Year	6.00	4.60	5.11 1/2	...	...	...

REVIEW OF THE JOPLIN ORE MARKETS.

The zinc blende ore market for the month of July was very much disturbed by the labor strike during the first part of the month, the strike condition causing very little ore to be produced with the result that the sales for the first two weeks of the month were very light, practically no ore was produced around Joplin, Webb City or Cartersville until about the middle of the month. Many of the striking miners returned to work July 12th although a number of mines were unable to start until the following week when production reached a normal basis. The market during this period remained at a standstill, no fluctuation in prices was recorded, the price remaining at \$110 per ton for high grade ore. Since the settlement of the strike the mines have been operating full time with production at a normal basis, practically the total tonnage of ore sold for the month was produced during the last half. The lowest price recorded for the month was \$90 per ton for second grade ore, the highest price for the month was \$120 per ton for first grade ore. Fluctuations in the prices were frequent although demand for ore was good the entire month. The total tonnage for the month of 15,450 tons was sold at an average price of \$98.81 per ton, which is about 10,000 tons less than was sold the previous month, showing that production for the month was much below normal, caused entirely by the strike situation during the first part of the month. The total tonnage of ore covering the seven months' period just past is 158,892 tons at an average price of \$73.39 per ton, a total valuation of \$11,662,532, this is 11,109 tons and \$24.71 per ton greater than the figures for the same period in 1914 or a total difference in valuation in favor of the 1915 output of \$5,977,631. The estimated surplus now held in the bins of the ore producers is 3,270 tons or 570 tons less than reported last month.

The calamine ore market suffered a severe decline, falling off very sharply in tonnage sold although prices were excep-

tionally good during the entire month. The lowest average selling price recorded was \$41.68 per ton, the high average price was \$60.89. The sales for the month total 841 tons at an average price of \$53.65 per ton, showing a production of 1,227 tons and \$10.46 per ton less than for the previous month, this month's production makes a total yearly production of 12,075 tons at an average price of \$43.21 per ton. Although the market for zinc ore underwent a general decline during the month of July, the market was firm at all times and producers were generally able to secure good prices for their ore, the very strong demand for first grade ore was a very noticeable feature, all the buyers of zinc ore tried to secure as large a tonnage as possible of the high grade ore, although with few exceptions the second grade ore producers have found an acceptable market for their product.

The lead ore market this month remained on a normal basis, the price of this ore remained at a standstill during the entire month, the base price paid by all the buyers was \$60 per ton of 80% lead on which basis the entire tonnage sold was settled for. A total of 2,895 tons was sold during the month at an average price of \$59.77 per ton, or practically 1,000 tons, and \$5.36 per ton less than the sales of the previous month. This condition is also accounted for by the strike during the first part of the month. The total tonnage for the year is 24,269 tons at an average price of \$52.33 per ton, which in comparison with the 1914 production covering the same period is 964 tons less and 5.98 per ton greater which shows a total difference in value of \$88,259 in favor of the 1915 production. The estimated surplus ore held in the bins of the producers is 765 tons which is much below normal, accounted for by the fact that the price of lead ore was very low up to June 1st and production was correspondingly low with the result that a greater portion of the surplus ore was sold when the price jumped to \$75 and \$80 per ton in June.

1915 PROMISES GOOD MINERAL OUTPUT.

"The mid-year finds the mineral industries of the United States generally prosperous and enjoying a revival of active development." With this statement the director of the United States Geological Survey opens an official review of mining conditions as reported to him by the government geologists and statisticians working on this subject. "This revival is particularly true of some of the metals for which increased demands have been noted during the past six months. This country has been first thrown upon its own resources for mineral products required and next, given the opportunity to supply the needs of foreign countries who have offered us their trade. Comparative freedom from foreign competition and, in some important cases, increase of foreign markets have stimulated production and a general mining advance has set in."

Summarizing the special reports at hand, Director Smith continues his review:

The six months' record in iron is reassuring in that hopes at the beginning of the year have been realized. Ore shipments from the Lake Superior mines have begun well, May, 1915, showing a 30% increase over May, 1914. The pig iron output is also promising in its steady increase month by month, so that a reasonable prophecy is for a greater total pig iron production for 1915 than for last year. Enlargement and extensions at the iron and steel plants furnish unmistakable evidence of returning business confidence.

The half year period just completed has witnessed great changes in the copper industry and in every particular the improvement has been notable. Prices, output, and wages have shown an upward trend, and prosperity is the word in the copper districts of the United States.

The demand for spelter and lead, with the present high prices, have given a double impetus to mining in the zinc-lead districts. In the Joplin region old mines are being reopened, new shafts are being sunk, and prospecting is most active. Smelters are pushed to capacity operation. The six months period has been altogether favorable for zinc mines and smelters, and the June advance in the price of lead makes the outlook bright for all lead mining.

In the minor metals, the first American

mine to be extensively operated for molybdenite has been opened in Colorado; a tin smelter is reported as being built in New Jersey; and the Colorado tungsten mines are working full handed on full time; an antimony smelter in California has resumed operations and a new one has been erected in the same State to work California ores; and antimony ores have been shipped from Nevada and Alaska. The demand for quicksilver has increased with the result that the California, Nevada, and Texas producers are expected to work at top capacity.

An unusual feature affecting coal mining has been the loss of bunker trade at the Atlantic ports, which is only partially offset by increasing exports. Reports from the West on the other hand show an increase in coal production over last year and in the East the coke output has increased considerably of late, thus showing at last the effect of the recent activity in iron and other metals.

The petroleum production for the six months just closed is believed to exceed that for the corresponding period last year. Unfortunately for the producers, this increase has not been in response to a demand expressed in higher prices. On the contrary the persistent flood of oil from the Oklahoma fields and from the new pools Louisiana and Texas has prevented any permanent advance in price.

Reports from the Survey's western offices are in the main optimistic. Colorado already shows an increase in gold output over the same period in normal years, and while the six months has shown no increase in tonnage for other ores, there has been a large increase in value and the present high prices give the promise of increased mining activity during the rest of the year. Utah is expected to reach a record output. Nevada mines are being operated at usual capacity, with new activity on the old Comstock. The lead and silver production in Idaho has only recently been stimulated, but a large increase in zinc output has already been shown. In Montana the copper mines have about reached normal conditions, the zinc production already shows a notable increase, and the gold output will be larger. New Mexico reports increases in gold, silver and zinc with fair prospects.

(Continued on page 47)

LIST OF ACTIVE ZINC SMELTERS IN THE U. S., SHOWING CAPACITY IN 1914, BY COMPANIES AND STATES.

(From the U. S. Geological Survey Compiled March 1915.)

(Includes plants working on ore alone, on ore and dress, and on drosses alone.)

Company and State.	Location.	Acid Plant.	Retorts at close of 1914.	Addition of retorts planned in 1915.
Colorado.				
United States Zinc Co.	Pueblo		1,920	.....
Illinois.				
American Zinc Co., of Illinois	Hillsboro	A	4,000	.....
Collinsville Zinc Smelting Co. (a)	Collinsville		1,536	.....
Granby Mining & Smelting Co.	East St. Louis ..	A		3,240
Hegeler Zinc Co.	Danville	A	1,800	1,800
Illinois Zinc Co.	Peru	A	1,640	.....
Mattheisson & Hegeler Zinc Co.	La Salle	A	5,256	912
Missouri Zinc Co.	Beckemeyer		192	.....
Mineral Point Zinc Co.	Depue	A	9,080	.....
National Zinc Co.	Springfield	Ab	3,200	.....
Robert Lanyon Zinc & Acid Co.	Hillsboro	A	1,840	.....
Sandoval Zinc Co.	Sandoval		996	.....
Total			32,540	5,952
Kansas.				
Altoona Zinc Smelting Co.(c)	Altoona		3,960	.....
American Zinc, Lead & Smelting Co.(c) ..	Caney		3,648	.....
Do (c)	Dearing		3,840	.....
Chanute Zinc Co.(a)	Chanute		1,280	.....
Edgar Zinc Co.	Cherryvale		4,800	.....
Granby Mining & Smelting Co.	Neodesha		2,560	.....
La Harpe Spelter Co.	La Harpe		1,856	.....
Pittsburgh Zinc Co.(a)	Pittsburg		910	.....
Prime Western Spelter Co.	Gas	Ad	4,768	.....
Total			27,532	.....
Missouri.				
Edgar Zinc Co.	St. Louis		1,100	.....
Oklahoma.				
Bartlesville Zinc Co.	Bartlesville		5,184	.....
Do	Collinsville		8,064	.....
Lanyon-Starr Smelting Co.	Bartlesville		3,456	.....
National Zinc Co.	do		4,260	.....
Tulsa Fuel & Manufacturing Co.	Collinsville		6,232	.....
Tulsa Spelter Co.	Sand Springs		2,400	1,600
Total			29,596	1,600
Pennsylvania.				
American Zinc & Chemical Co.	Langeloth	A	880	2,640
New Jersey Zinc Co. (of Pennsylvania) ..	Palmerton		5,760	.....
West Virginia.				
Clarksburg Zinc Co.	Clarksburg		1,824	.....
Grasselli Chemical Co.	do	Ae	5,760	.....
Do	Meadowbrook ..	Ae	6,912	.....
Total			14,496	.....
Total for all States			113,824	10,192

PLANTS WITH SPECIAL RETORTS. (f)

Michael Hayman & Co.	Buffalo, N. Y.	12
Trenton Smelting & Refining Co.	Trenton, N. J.	40
Wm. Cramp & Sons Ship & En. Bldg. Co.	Philadelphia, Pa.	24

(a) Idle in 1914; (b) The National Zinc Co. has zinc-roasting furnaces at Argentine, Kansas, where the sulphur gases are utilized in an acid plant, the roasted concentrates being shipped to the smelter at Springfield, Ill. (c) Practically idle in 1914. (d) The Prime Western Spelter Co. has roasting furnaces and an acid plant at Tiltonville, Ohio. (e) The Grasselli Chemical Co. operates acid plants in connection with its zinc-roasting furnaces at Grasselli, Ind., Cleveland, Canton, and Lockland (near Cincinnati), O., and Newcastle, Pa., the roasted zinc concentrates being shipped to the smelters at Clarksburg and Meadowbrook, W. Va. (f) Large graphite retorts yielding 600-800 lbs. of spelter per charge.

BRANDS OF COPPER.

United States.

L A K E .

Refined at:

Branded.

Adventure	Hancock, Michigan.	Adv. C. Co.
Atlantic	Houghton, Michigan.	A.
Calumet & Hecla	Hubbell, Michigan.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	B. I.
Centennial	Hancock, Michigan.	C. C. M. Co.
Copper Range	Houghton, Michigan.	C. R.
Franklin	Hancock, Michigan.	F. M. Co.
Isle Royale	Dollar Bay, Michigan.	I. R. C. Co.
Mass.	Hancock, Michigan.	Mass.
Michigan	Houghton, Michigan.	M. C.
Mohawk	Houghton, Michigan.	M. M.
Osceola	Dollar Bay, Michigan.	T. O.
Quincy	Hancock, Michigan.	Q. M. Co.
Tamarack	Dollar Bay, Michigan.	T. O.
Victoria	Hubbell, Michigan.	V. C.
Winona	Hubbell, Michigan.	W. A.
Wolverine	Houghton, Michigan.	W.

ELECTROLYTIC.

Refined at:

Branded.

American S. & R. Co.	Perth Amboy, N. J.	P. A.
Balbach S. & R. Co.	Newark, N. J.	Cathodes only
Baltimore Copper Works	Baltimore, Md.	B. E. R.
Boston & Montana Co.	Great Falls Mont.	B. & M.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Copper Queen	Laurel Hill L. I.	C * Q
Miami	Laurel Hill L. I.	A. L. S.
Nichols Copper Co.	Laurel Hill L. I.	L. N. S.
Orford Copper Co.	Chrome, N. J.	O. E. C.
Raritan Copper Works	Perth Amboy, N. J.	N. E. C.
U. S. Metals Ref. Co.	Chrome, N. J.	D. R. W.
United Metal Selling Co.	Laurel Hill L. I.	R. M. C.

CASTING.

Refined at:

Branded.

Balbach S. & R. Co.	Newark, N. J.	N. B. C.
Boston & Montana Co.	Great Falls Mont.	M. A.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Duquesne Reduction Co.	Pittsburgh, Pa.	D. E. C.
Nichols Copper Co.	Laurel Hill L. I.	C. N. C.
Phelps Dodge & Co.	Laurel Hill L. I.	P. D. Co.
Tottenville Copper Co.	Tottenville N. Y.	C. T. C.
U. S. Metals Ref. Co.	Chrome, N. J.	D. S.
Wheat & Bros., Inc.	Philadelphia, Pa.	W. B.

TRADE NOTES.

The Lake Erie Smelting & Refining Company, Cleveland, has commenced extensive additions to its copper refining plant. A 10-ton smelter will be installed for reclaiming copper, and a 25-ton blast furnace and ten crucible furnaces. Two buildings, 50 x 75 ft., will be erected, one for the smelting equipment and the other for a new laboratory, offices and a warehouse.

Manganese, Inc., Binghamton, N. Y., has been incorporated with a capitalization of \$100,000 by A. M. Thomson, Binghamton; E. C. Richards and R. L. Ernne, Utica, N. Y., to mine and manufacture manganese and its products.

The Chicago Metal Products Company, Columbus, Ohio, will soon commence the installation of machinery in its new plant on Cleveland Avenue. The new structure is already under cover and will be completed within two weeks.

The General Aluminum & Brass Mfg. Company, Detroit, manufacturer of aluminum and brass castings, has increased its capital stock from \$150,000 to \$400,000.

The Homestead Valve Mfg. Company, Homestead, Pa., has increased its capital stock from \$50,000 to \$75,000, and it is stated will make some slight additions to its plant.

The Dominion Aluminum Last Company, recently incorporated, has secured a site on McDougall street, Windsor, Ont., for a factory to cost \$10,000. The directors of the company are George A. Farabaugh, William H. Holland, George C. Clark, all of South Bend, Ind., and others.

The Enterprise Hardware Company, Frederick, Md., which is planning the establishment of a plant for the manufacture of locks and hinges, is seeking prices on boilers, drills, engines, lathes and shafting.

The Standard Smelting Company, Pittsburgh, has been incorporated in Delaware by H. S. Glen and others with a capital stock of \$100,000 to smelt, reduce and extract mineral bearing ores.

The Badger-Packard Machinery Company, 76 West Water street, Milwaukee, has increased its capital stock from \$50,000 to \$75,000. The company formerly was known as the O. L. Packard Machinery Company and recently absorbed the H. P. Yale Company. Previously it consolidated with the Badger Machinery Company and is occupying the former quarters of this company.

The All-Steel Co., Youngstown, O., has been incorporated; \$10,000 capital stock; by William H. Faster, R. M. Bell, John T. Harrington, L. B. Davenport and Richard B. Wilson.

The Sheet Metal Products Company, Kansas City, Mo., has been incorporated with a capital stock of \$12,000 by John McClelland, C. A. Smith and J. P. Curry and will equip a metal working plant.

The National Tool Company, Cleveland, will enlarge its plant by the erection of a one-story building 60 x 180 ft., to be occupied as a machine shop, hardening department, power plant and storage department. A new steam power plant will be installed. The company will be in the market shortly for a 150-hp. steam engine and boiler. Some additional machine-tool equipment will probably also be installed. The company reports that it is crowded with orders for milling cutters and other products; and it is at present operating its plant night and day.

The Abbott Stamping Company, Detroit, has been incorporated with \$6,000 capital stock to manufacture steel stampings and enamplings. Charles S. Abbott, F. B. Boileau and B. B. Bebbet are the incorporators.

The Canadian Steel Products Company, Montreal, Que., has been incorporated with a capital stock of \$10,000 to manufacture machinery, iron and steel products, etc., by Jessie Brown, Montreal, and others.

The Grapho-Metal Mfg. Co., Indianapolis, has been incorporated to manufacture machinery; \$200,000 capital stock; by A. H. Schlegel, Frank Fitton and W. A. Bristol.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, SEPTEMBER, 1915.

NO. 9.

Published Monthly by the American Metal
Market Company, 81 Fulton St., New York.
C. S. Trench, President,
C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year
for United States, Canada and Mexico; for
other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class
mail matter.

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THE BUSINESS SITUATION AND PROSPECTS.

The end of the first year of the Great War finds the U. S. enjoying the greatest prosperity, although not generally equally divided, with some tremendous changes in our position as a factor in the business and financial world. The most important is the supremacy we have gained in finances, the result of the misfortunes of all the other important countries of the world, and the enormous balance of trade in our favor, caused by our having become the world's largest exporter, exceeding England's record, the selling of the output of our farms, mines and factories at large profits, also by reason of the falling off in our imports and expenditures abroad, all the result of the war.

What the War Has Cost England.

Outside of the human equation, the greatest cost to England from the war has been the loss of supremacy that she has held for nearly a century in the financial affairs of the world, and we had this quoted to us by one of the largest English bankers this month, as a demonstration that England did not bring on the war, and also how dead in earnest she is in her fight for the moral issue, since she is willing to make this material sacrifice. The slur that business and trade rivalry alone was her reason for entering the war will not hold, since she is so doing, has aided the most powerful power she has in trade, which is not Germany, but America, and has suffered a loss in her trade position that she may never fully recover.

The Foreign Sterling Exchange Situation.

The position to-day is that the Allies who are the only countries with whom we do trade by reason of England's enormous loss

EDITORIAL

states, are at their wits end to evolve some plan by which they can settle what they owe us without parting with the gold they must hold for the protection of their position at home. Thus unless some plan is arranged to solve it, the question threatens the continuance of the record dimension of the export trade we have been doing.

Our Position on the Moral Issues of the War.

It makes us have almost a feeling of shame that we should be rolling in ease and prosperity, and wresting from these countries what they have held in the past, while they are impoverishing themselves and losing millions of their sons in a fight for democracy against militarism, right as against might—faith as against broken treaties—civilized methods of conduct as against barbarism, in other words, fighting for all we stand for ourselves. If we are to be on-lookers only and to profit by this attitude, we must not be surprised if we find in the end that we have lost our power to have a say in the terms on which peace when it comes will be decided, or that while we have enormously gained materially we have lost what is a great deal more valuable, our moral power and the respect of other countries who have in the past considered us a nation who stood for the ideals that they fought for. Most of the issues at stake are moral ones and on such there can be no neutrality.

There Are Worse Things Than War.

We must take our stand for or against, and the individuals composing our real Americans have under the leadership of the press shown very plainly where they stand. It is doubtful if President Wilson in his earnest and conscientious efforts to prevent our being involved in this war is not taking a risk that may prove in the end unfortunate. There are worse things than war that can befall a nation. Ease and temporary prosperity is dearly bought when at the expense of temporizing with moral issues and ideals. There is a limit to words and protests and when if they are not to become farcical must lead to action.

Present Prosperity Not Universal.

In our present prosperity we have no reason to be proud—it has been thrust upon us by circumstances and a Beneficent Provi-

dence in our record-breaking crops, but as we said before, this prosperity is not equally divided among business and the individuals generally.

Largely Result of War Orders.

While industries engaged on war orders are enjoying extraordinary activity and profits and a veritable boom, less fortunate industries dependent on ordinary home requirements are recovering very slowly and are still behind the records of previous good times.

The Railroad Situation.

The reasons for this may be found in the fact that our greatest home industry, the railroads, are not prosperous and are not free spenders, and those in charge of their management are inclined to be pessimistic as well they might be at the showing of their balance sheets, and that while sentiment and legislation is less hostile than a year ago, they are compelled to operate under regulations that constantly require the closest economy in order to pay the interest on their bonds and make in the case of the fortunate few a small return to their stockholders. It would be extraordinary if the entire business of the country was enjoying a full measure of activity and prosperity with a large percentage of their largest industries and buyers of commodities, the railroads, in the hands of receivers, which is the situation to-day. We hold no brief for the railroads, but it is common sense that something must be wrong when such conditions exist, and to a great extent it is the result of our own unwisdom. What would be the state of affairs if our other industries were hampered and regulated in the same manner. The railroads, on account of their size and relation to public service, have been considered apparently different to any other business undertaking, and yet we know of nothing that differentiates them from any other business. They are subject to the same commercial rules of profit and loss, revenue and expense. The matter is one that has been discussed until it is thread-bare, but the public are slow to be convinced. Although extraordinary circumstances may hide the disadvantage, we will never have a full measure of the prosperity that should be ours while the railroads continue to be treated unfairly. If we cannot trust their

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management to those who are elected to represent the capital invested in them, if we are determined to get a certain amount of service without permitting rates or taxes, or regulations to make such service profitable to those engaged in providing it, then let the railroads be taken over by the State and the loss equally divided by taxation to the public. Otherwise, although we cannot definitely locate where the public suffers, it is a real loss nevertheless. In other words, there is a great deal that is not fundamentally sound in our present business activities. It hangs too much on conditions caused by war orders and the war. There is a great deal yet to be righted in our legislative attitude to business in the past. This is at present lost sight of in the general war activities, but it is there and will assert itself again some day.

Some Untoward Features for the Future— The Labor Question.

There are other features that are developing to plague us in the future—for instance, the labor question. Under the stress of war orders we find a demand which to a great extent is being granted for increased wages, and an eight-hour day, and in our opinion it will not be confined to war order factories. Labor will never give up any advantage won without a fight. We consider the labor question a most serious one, although we may have to wait until trade falls off to find how serious it is.

Zenith of War Orders Reached—Over- Production Threatened.

Also the over-production in creating facilities for meeting the extraordinary war demand which we believe has reached its zenith as regards orders. Our reason for saying this is that a few months ago the Allies were at their wits end to find some one to supply their deficiencies in war munition. Since then they have largely increased their own facilities and are doing so daily, and if this war lasts a year, England

and France will be able to take care of all their war requirements to a great extent.

Peace Demand, Not War Demand, Is Only Safe Basis.

What we need in the future is not this new demand that has struck us and is certain to stop some day, but a demand based on peace. We doubt if your business legislation has yet been put in proper shape to enable us to get the full advantage of normal peace requirements.

Acute Foreign Competition After the War.

Also with the war ended there will develop extraordinary efforts by the belligerents to get back the trade they have lost, and it will be along the lines of not only great effort and great economy, but also a sure to be aided by the state, through bounties, tariff, etc.

A Prediction.

Readers of the Digest in the months that followed the opening of the war will remember that we predicted a great deal of what has taken place in the prosperity and activity of our country and especially the iron and steel trade. It is now so evident on every side that it requires no recapitulation. We prefer rather than dwelling on what is now so apparent on every side, to take a look into the future. That future to us looks like continued activity while the war lasts, to be followed by an excited boom with peace and the plethora of money and extravagance which is already beginning, and to finally end in a serious panic, and be followed by long years of recuperation and recovery and economy. In that panic we will have to take care of ourselves, Europe will not be able to help us as in past panics. This the most awful war on record, must be followed by years of hard times and economy, and it is absurd to think that we will not have to participate in it, even if we are fortunate enough not to become ourselves involved in a belligerent.

BUSINESS TRENDS.

THE STOCK MARKET IN AUGUST.

The Stock market at the opening of the month was very active and decidedly irregular. Further advances were scored by the war stocks and industrial specialties in which current speculative tendencies find their chief outlet. United States Steel and other stocks of that class also advanced on increased activity in the trade and rising prices for mill products. Favorable crop reports and expectations of advances in western railway rates also tended to create bullish activity in the railroad list but this movement was modified by the two decisions of the Interstate Commerce Commission the first practically refusing the higher rates to the western lines and granting only a limited number of relatively unimportant increases and the second ordering sweeping reductions in anthracite coal rates which caused breaks in the hard coal railway stocks.

Upon receipt of news of the sinking of the steamship Arabic by a German submarine the market became very disturbed the incident causing great liquidation among speculators and a decided break in prices throughout the entire list. However, rumors that the German government would modify its attitude about submarine warfare halted the downward movement and more definite intelligence on this head served as a basis for a general rally.

The market at the close was somewhat disappointing inasmuch as the apparent adjustment of the difficulties with Germany failed to create renewed bullish activity. The further break in foreign exchanges caused uncertainty about export business and some fear regarding possible cancellations of war orders. The market closed with speculative interests inclining to await an adjustment of the exchange problem, which is expected when the British financial delegation, now supposedly on the way, reaches this country.

FAILURES IN AUGUST.

That the weak spots in the general situation are steadily being eliminated is indicated by the fact that the country's business mortality during August made a relatively better exhibit than in the same period of any recent year.

OUR FOREIGN TRADE.

Figures made public by the Bureau of Foreign and Domestic Commerce, Department of Commerce show a slight decrease in imports and a large gain in exports during July and the seven months ending with July 1915 when compared with those periods of last year. July imports totalled \$143,099,620 this year against \$159,677,291 a year ago. July exports were the largest ever recorded for that month being for this year \$267,978,990 compared with \$154,138,947 for July 1914 and \$160,990,778 for July 1913 when the month made a new high record.

Our foreign trade for July and seven months compares as follows:

	July.	1915.	1914.
Exports	\$267,978,990	\$154,138,947	
Imports	143,099,620	159,677,291	

Excess of exports \$124,879,370 *\$5,538,344

*Excess of imports.

Seven months ended July 31st.

	1915.	1914.
Exports	\$1,969,787,495	\$1,200,982,162
Imports	1,008,909,441	1,140,593,373

Ex. of exports. \$960,878,054 \$60,388,789

HEAVY DECREASE IN BUILDING.

There were 22,901 permits granted to builders during the month of July and the estimated value of the structures planned was \$70,455,531 decrease of, respectively 8% and 14 2/3% from the like month a year ago, which showed a gain of 5.1% in value over July two years ago.

This is the report of Bradstreet's Journal of building during July and is a rather unsatisfactory one, a heavy decrease being shown alike in number of permits granted and in value of buildings projected and it is quite evident that the building trade lags behind some others in the movement toward improvement noted in the past few months.

The only exception to the general tendency toward a decrease is found in the New England group in which gains of 16.6% in permits and of 46.6% in values were shown over a year ago, these increases being due to the numerous additions being made to munitions plants.

BUSINESS TRENDS.

NEW INCORPORATIONS.

A perceptible increase was shown in the output of charters last month. The grand total of companies that filed papers with a capital of \$100,000 or more in all States, including those of the East, amounted to \$148,186,000. This is an increase of \$13,511,000 over the preceding month and \$52,401,000 over August, 1914. Companies incorporated in the Eastern States with a capital of \$1,000,000 or over represented a total of \$67,100,000. This is \$4,000,000 less than the previous month, although the total is larger than in August a year ago by \$16,500,000.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. ..	\$51,150,000	\$120,050,000	\$332,450,000
Feb. ..	53,950,000	51,575,000	191,500,000
Mar. ..	70,050,000	57,700,000	166,030,000
April .	32,200,000	136,185,000	198,718,000
May ..	78,950,000	62,700,000	172,200,000
June ..	181,247,100	70,050,000	79,550,000
July ..	71,100,000	68,700,000	83,650,000
Aug. ..	67,100,000	50,600,000	63,500,000
Total	\$676,847,100	\$685,260,000	\$1,391,248,000
Sept. .	54,800,000	42,750,000	
Oct. .	35,487,500	70,856,300	
Nov. .	81,650,000	77,800,000	
Dec. .	105,450,000	55,250,000	
Total	\$894,747,500	\$1,534,254,300	

PIG IRON PRODUCTION CONTINUES TO INCREASE.

Pig iron production in the United States is mounting rapidly. In August it was 2,779,647 tons, or 89,666 tons a day, against 2,563,120 tons in July, or 82,691 tons a day. The steel works furnaces increased 5,000 tons and the merchant furnaces 2,000 tons a day. Steel companies produced 2,101,818 tons of pig iron last month, breaking all records. May, 1913, with 1,991,192 tons, is the nearest month.

On September 1st the capacity of the 249 furnaces in blast was 91,075 tons a day, a rate only exceeded in February and April, 1913. On August 1st the 234 furnaces in blast were making 86,776 tons a day. Furnaces are still wheeling into line, the Steel

Corporation blowing in one at Pittsburgh and one at Farrell, Pa., this week. Pig iron production is now at the rate of 17,500,000 tons a year. It was 18,000,000 tons a year on January 1st.

The daily average production of coke and anthracite pig iron in the United States by months since January, 1912, is given as follows by the "Iron Age":

	1912.	1913.	1914.	1915.
January	66,384	90,172	60,808	51,659
February ...	72,442	92,369	67,453	59,813
March	77,591	89,147	75,738	66,575
April	79,181	91,759	75,665	70,550
May	81,051	91,039	67,506	73,015
June	81,358	87,619	63,916	79,361
July	77,738	82,601	63,150	82,691
August	81,046	82,057	64,364	89,666
September ..	82,128	83,531	62,753	....
October	86,722	82,133	57,316	....
November ...	87,697	74,453	50,611	....
December ...	89,766	63,987	48,896	....

RECORD AUGUST BANK CLEARINGS.

Bank clearings for the month of August have attained a record volume for this specific period, even though the showing is not quite so favorable as that of some recently preceding months—April, May and July, for instance. Indeed the total for August, \$14,179,124.648, reflects a drop of about 5% from July, but on the other hand, it indicates a rise of 44% over August, 1914, of 15.6% over that month of 1913, of 8.2% over the like time in 1912, and of 5.9% over the same period in 1909, heretofore the best August on record. While the rise over August, 1914, was at large proportions, 44%, it must be considered in measuring the movement that New York City shows a gain of 87.3%, while the country outside of the metropolis reflects a rise of only 7.2%. Six out of seven groups display advances over August, 1914, the exception being found in the South, and practically all of the larger centers report increases. Briefly, 72 cities registered gains and 50 suffered decreases, 18 of the last given number being southern centers. As compared with 1913, four groups, the New England, middle western and southwestern, disclose advances, while three, the north-western, southern and farwestern, indicate decreases.

THE NEW STOCK MARKET CYCLE.

Special from Warren F. Hickernell, Editor, The Brookmire Economic Service.

When the New York Stock Exchange reopened last December, the market for securities was still floundering in a period of readjustment at low prices—the last period of the stock market cycle which began in 1911. In March, however, the stock market emerged. It shook off the shackles of depression and exalted itself. Not since the Trust promotion era which marked the dawn of the present century were such conspicuous advances in prices of industrial stocks witnessed as occurred in April, 1915.

The new cycle began somewhat unexpectedly. Copper prices had been gradually recovering, but a large proportion of the producing capacity was still out of operation, and prosperity prices seemed unreasonable until there was greater prosperity in the copper industry. Yet copper prices and copper stocks began to rise and kept on rising at an almost unprecedented rate. The automobile stocks too, aeroplaned upward. It was known that the automobile business was especially favored by low prices of rubber, gasoline, and metals, but shortly the rise in security values surpassed the ordinary experience of periods of prosperity. It had been known early in the war that Bethlehem Steel had received large war-orders and the rise in the common stock in April actually came later than was expected, but for this non-dividend-paying stock to go beyond par was a phenomenon almost without the pale of stock market experience. The accompanying chart compares the recent movements of Bethlehem and three other stocks with 1912, when copper went to 17½¢ per pound and the Steel Corporation's unfilled orders rose to almost 8,000,000 tons.

The rise in Steel Common is about the same as three years ago, but most other industrial stocks have risen out of all proportion. When the Bull Market started last March, experienced investors were skeptical. They reasoned that the length of the war was uncertain and that unconfirmed rumors of war-orders were not sufficient reason for following the advance. The general public, however, became excited and bought war-order stocks very greedily. Experienced investors get certain habits of buying and selling, and there

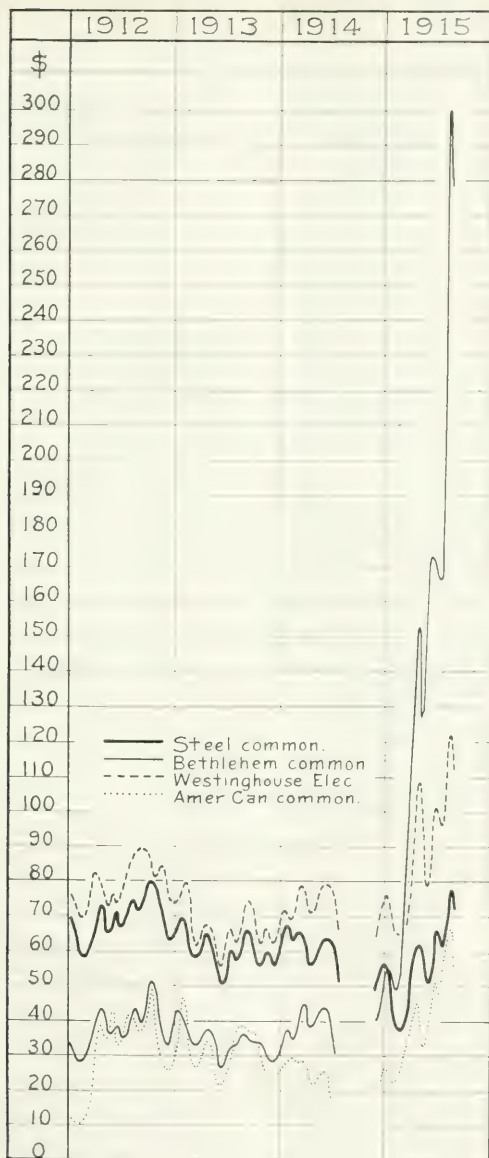
is no doubt that this class of security owners sold out before the market reached the top last April. The inexperienced investor, however, has no sense of location in judging price movements, and there was a multitude of this class which bought stocks as long as they continued to rise. Or rather it would be more accurate to say it was the blind scramble for stocks by the general public that forced the rise into a runaway market. Still one should hesitate to call an investor blind who buys Bethlehem Steel at \$150 a share when its war-orders are reported at \$250,000,000, an amount equal to eight times the par value of its capital stock. The trouble is that there were similar rumors about other stocks which have since been officially denied. The \$150,000,000 of war-orders for Crucible Steel were later reduced to only \$15,000,000 when Mr. Wilkinson of the Crucible Company stated that figure as the approximate amount.

In addition to the uncertainty of the actual value of the war-orders, there is the additional question whether profits can really be very large when equipment companies and other factories inexperienced in making shrapnel try their hand at manufacturing war supplies. When a powder company makes powder and an ordnance company makes guns, large profits are to be expected. But when the American Locomotive and American Can companies undertake to manufacture ammunition, it is likely that profits will be largely cut down owing to inexperience and inefficiency. The following table suggests what orders have been taken by companies which are working along their regular line:

Confirmed Orders.

\$250,000,000	— Bethlehem Steel
105,000,000	— General Electric
50,000,000	— Electric Boat
25,000,000	— Hercules Powder
25,000,000	— U. S. Steel
20,000,000	— Studebaker Corporation
15,000,000	— Crucible Steel
8,000,000	— American Woolen Co.
7,000,000	— Lackawanna Steel Co.
6,000,000	— International Fuse Co.
1,000,000	— Westinghouse Air Brake.

287,000,000 — Total.



End of old cycle				Beginning of new stock market cycle			
FOURTH	PERIOD	FIRST	PERIOD	SECOND	PERIOD		
DEC.	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY
							AUGUST
\$105							
\$100							
\$95							
\$90							
\$85							
\$80							
\$75							

Ave. 20 Railroad stocks

Ave. 12 Industrial stocks

As compared with this amount of business received by companies working along their own line, there are also the following orders received by companies which have to go out of their regular line:

Confirmed Orders.

\$83,000,000	— Canadian Car & Foundry
62,000,000	— Westinghouse Electric
40,000,000	— American Can Co.
34,000,000	— Locomotive Co.
17,000,000	— New York Air Brake
7,500,000	— International Steel Pump
7,000,000	— Chicago Pneumatic Tool

250,500,000 — Total.

It is also known that large orders have been received by the White Motor Company, the Willys-Overland Company, the General Motor's Company, the Locomobile Company and other automobile corporations. It is also certain that the powder, cartridge, and arms companies are reaping a rich harvest. It is characteristic in New Haven to ask the incoming stranger if he has come to work for the "Winchester", so busy is the arms industry. A few of the unconfirmed estimates made of orders in these lines here follow:

\$100,000,000	— Winchester Arms Co.
90,000,000	— Remington Arms Co.
68,000,000	— Garland Corporation
30,000,000	— Union Metallic Cartridge
18,000,000	— U. S. Cartridge Co.
15,000,000	— Colt Fire-Arms Co.
10,000,000	— Am. Ammunition Co.

\$331,000,000 — Total.

Undoubtedly the earnings of industrial corporations during the present year will

be large, and for that reason the rise in the average of 12 industrial shares in the accompanying chart is largely justified. We have reached a period, however, where neither the public nor the professional speculators are willing to follow the advance further without the stimulus of news in the fundamental situation.

There are four periods in each Cycle of the Stock Market: (1) rising level; (2) high level; (3) declining level; (4) low level. Every metal man knows that copper and steel prices go through similar periods during each Cycle of Trade, and it is logical, therefore, to expect steel and copper securities to go through similar cycles only somewhat in advance. During the First Period of the stock market cycle, prices are marked up at random because it is not known to what extent business prosperity will develop. This was the case when the stock market rose last April. In the Second Period of the stock market cycle, however, prices are adjusted in consonance with the actual state of affairs in each individual corporation. The prices of industrial shares have kept on rising and the prices of rails have become heavy in contrast with the movement last April when both the Rails and Industrials were advanced in random fashion.

The present outlook is for continuation of bullish activity in the stock market while new business keeps coming in. The Third Period of the stock market cycle, the period of declining prices, will not be in order until fundamental conditions indicate that new business is being curtailed and that business liquidation is looming upon the horizon.

WAR MATERIAL EXPORTS.

Exports of Auto Trucks Take Lead Over Horses for First Time Since War Began—Auto Trucks Exported in June, \$8,578,802, Against \$120,257 in 1914—Outward Movement of Cartridges, Firearms, Gunpowder, and Explosives Increasing.

Exports of auto-trucks in May were the important factor in our trade with Europe in merchandise used expressly for purposes of war, the total for the month being 2,990 cars, valued at \$8,578,802. Horses were second on the list, with a total of \$8,093,449; explosives next, with \$5,911,186, followed by rubber manufactures, \$3,558,330, and gunpowder, \$3,234,549.

The total value of the twelve important items of such exports for the month of June amounted to \$36,966,970, an increase of \$34,044,971 over the corresponding month last year and also the largest of any month in the war period. The total for the six months since last September was \$204,007,777, an increase of \$174,544,072 over 1914. It is appended a table which registers

to go with in our exports of war materials since the embargo was lifted from American shipping, at the opening of September. It gives the increases or decreases in monthly exports from the United States, as compared with a year before, of the twelve classifications which can be described beyond dispute as representing war materials:

	June.	May.
Aeroplanes.. Inc.	\$394,721	Inc. \$230,804
Barbed wire. Inc.	858,646	Inc. 742,996
Auto trucks. Inc.	8,458,545	Inc. 6,456,890
Cartridges .. Inc.	2,178,163	Inc. 2,819,080
Explosives .. Inc.	5,870,743	Inc. 4,865,098
Firearms ... Inc.	700,163	Inc. 885,646
Gunpowder . Inc.	3,228,376	Inc. 538,969
Horses Inc.	7,926,157	Inc. 7,856,876
Horseshoes . Inc.	492,896	Inc. 92,014
Motorcycles. Inc.	270,537	Inc. 43,099
Rubber mfrs. Inc.	379,000	Inc. 362,616
Wool mfrs. . Inc.	3,136,014	Inc. 849,934

	April.	March.
Aeroplanes.. Inc.	\$344,432	Inc. \$16,287
Barbed wire. Inc.	578,272	Inc. 424,252
Auto trucks. Inc.	5,167,805	Inc. 4,661,631
Cartridges .. Inc.	2,166,610	Inc. 1,197,582
Explosives .. Inc.	2,682,862	Inc. 634,188
Firearms ... Inc.	165,690	Inc. 234,140
Gunpowder . Inc.	408,160	Inc. 211,852
Horses Inc.	6,413,813	Inc. 1,662,226
Horseshoes . Inc.	368,528	Inc. 211,752
Motorcycles. Inc.	27,359	Inc. 58,895
Rubber mfrs. Inc.	438,855	Inc. 225,209
Wool mfrs. . Inc.	1,244,884	Inc. 2,935,610

	February.	January.
Aeroplanes.. Inc.	\$8,627	Inc. \$78,079
Barbed wire. Inc.	43,684	Inc. 133,211
Auto trucks. Inc.	2,919,021	Inc. 2,471,036
Cartridges .. Inc.	1,577,698	Inc. 1,207,950
Explosives .. Inc.	836,079	Inc. 995,769
Firearms ... Inc.	376,297	Inc. 1,946,144
Gunpowder . Inc.	30,223	Inc. 52,257
Horses Inc.	9,090,825	Inc. 7,625,950
Horseshoes . Inc.	31,925	Inc. 56,747
Motorcycles. Dec.	51,022	Inc. 7,833
Rubber mfrs. Inc.	272,852	Inc. 623,978
Wool mfrs. . Inc.	4,110,806	Inc. 2,570,661

	December.	November.
Aeroplanes.. Inc.	\$57,125	Inc. \$16,556
Barbed wire. Dec.	2,324	Inc. 484,178
Auto trucks. Inc.	3,287,069	Inc. 2,139,017
Cartridges .. Inc.	485,751	Inc. 1,090,008
Explosives .. Inc.	871,516	Inc. 32,329
Firearms ... Inc.	676,111	Inc. 975,356
Gunpowder . Inc.	9,726	Inc. 9,027
Horses Inc.	7,090,789	Inc. 4,863,724
Horseshoes . Inc.	307,438	Inc. 177,950

Motorcycles. Dec.	47,880	Inc. 2,460
Rubber mfrs. Inc.	649,370	Inc. 146,869
Wool mfrs. . Inc.	3,720,184	Inc. 2,608,019

	October.	September.
Aeroplanes.. Inc.	\$17,953	Inc. \$1,789
Barbed wire. Inc.	419,243	Dec. 134,097
Auto trucks. Inc.	2,157,458	Inc. 202,234
Cartridges .. Inc.	1,118,507	Inc. 252,907
Explosives .. Inc.	16,770	Inc. 133,340
Firearms ... Inc.	336,917	Dec. 13,212
Gunpowder . Inc.	9,834	Inc. 28,098
Horses Inc.	1,587,033	Inc. 747,722
Horseshoes . Inc.	68,870	Inc. 104,451
Motorcycles. Inc.	28,437	Dec. 9,445
Rubber mfrs. Dec.	132,694	Dec. 257,419
Wool mfrs. . Inc.	1,346,345	Dec. 48,579

How the actual totals of these exports compared, month by month, can be seen from the following table, which also presents the movement of a year ago.

	1915-14.	1914-13.	Increase.
Sept. ..	\$3,798,717	\$2,785,787	\$1,012,939
Oct. ..	10,193,634	3,219,670	6,973,964
Nov. ..	14,923,059	2,368,102	12,554,957
Dec. ..	20,550,682	7,341,207	17,209,495
Jan. ..	20,163,660	2,300,145	17,863,515
Feb. ..	21,785,976	2,438,851	18,347,125
Mar. ..	22,192,541	3,449,607	18,742,934
April ..	23,766,472	3,764,202	20,002,270
May ..	28,694,062	2,902,040	25,792,022
June ..	36,966,970	2,921,989	34,044,971
Total..	\$204,035,773	\$29,491,691	\$174,544,072

Horses, auto trucks, aeroplanes, and motorcycles—all contributing to transportation in the war region—had an export value of \$92,560,238 in the six months' period. That was about 45% of the above total. The shipments of horses alone in the past twelve months amounted to 289,340 animals, valued at \$64,046,534, which furnished about 32%.

England purchased 8,089 horses during May, the value of which was \$1,635,275. This compares with seven horses, with a value of \$3,550, sent to that country in June, 1914. France purchased 15,752 head, valued at \$3,867,700. There were no shipments to France in 1914. Other countries not classified bought 2,790 head, worth \$645,954, against 326, worth \$55,303 in 1914.

Of the automobile exports the United Kingdom and France purchased more than half of our shipments, the former taking 2,246 cars, worth \$4,413,387, while the latter bought 969 cars, valued at \$2,634,338. In June, 1914, these two countries purchased cars valued at only \$28,148 in this country.

THE RAPID INCREASE IN BY-PRODUCT COKING.

The Geological Survey's report on coke in 1914 states that 11,219,943 short tons of retort coke was made in the United States in that year, with a recovery of more than \$17,500,000 value in by-products, or about \$1.55 for each ton of coke produced. Then it points out that as there was more than 23,000,000 tons of beehive coke produced in the year, and the yield of coke in the beehive practice is less than in the retort process there was a loss of \$10,000,000 in by-products due to the practice of the beehive process.

This of course was not to the full extent a money loss, first because there is an expense attached to the recovery of the by-products and the \$17,500,000 reported was not the profit on by-products at the retort plants, but the value of the product, and second because to stop making beehive coke means a large loss in capital to those who stop.

That the beehive practice will be forced to stop has long been a settled fact. The position of the beehive process has gone through successive changes. Until 1893 it was the only process practiced. In May of that year 12 retort ovens were completed and put in operation at Syracuse, N. Y., with attached recovery apparatus. For years the retort process made very slow gains, there being a strong prejudice against retort coke on the part of blast furnace operators. The beehive process continued to grow. That constituted the first period in the history of the beehive process, one of growth. The period continued until 1907 or 1910, until 1907 if one takes for his basis the statistics of production, for in 1907 the maximum output of beehive coke, 35,171,665 tons, was recorded, and until 1910 if one takes the number of ovens for a basis, for it was at the end of 1910 that the maximum number of beehive ovens was reported, 100,362.

The second period can be defined academically rather than commercially, comprising an indefinite time in which the beehive ovens would be considered as simply existing to work out their coal, without any new ovens being built. The third period, in which it is that the industry has entered,

is that of beehive ovens being retired, not at the running, and not the coal upon which they were predicated having been exhausted. In such a condition there is a partial loss of the capital investment, as little can be reclaimed in dismantling beehive ovens, and the coal, in a broad sense, is less valuable for retort than for beehive practice, that is, for beehive practice the coking coals that have been used have a longer lead over other coals than they have in the case of retort practice. There are coals that are used successfully in retort practice that would not be used in beehive practice. It may be noted, however, that the availability for retort practice of coals other than the recognized beehive coking seams is not as great as was supposed a few years ago.

The fact that the beehive process is decadent makes it that the coal hitherto devoted to beehive practice will be available in the market at lower prices, for retort ovens, than would otherwise be the case, and the builders of retort ovens can now count upon using better coals than it would have been wise to consider a few years ago.

The building of retort ovens in recent years has resulted in the increase in coke making capacity being greater than the increase in coke demand, and at the present moment the disparity is particularly great for a large number of by-product ovens are in course of construction, while very few blast furnaces are being built. The truth of these statements will be quite apparent from a citation of statistics. The 1914 coke figures were given out by the United States Geological Survey last week, and we present a complete statement below.

Coke Production in United States— Short tons.

	Beehive.	By-product.	Total.
1893	9,164,730	12,850	9,177,580
1894	9,187,122	16,500	9,203,622
1895	11,715,193	18,521	11,733,714
1896	11,705,735	83,038	11,788,773
1897	11,077,072	261,912	11,288,984
1898	12,552,564	294,445	12,847,009
1899	18,762,035	906,544	19,668,579
1900	20,457,621	1,074,721	21,532,342

	Bee-hive.	By-product.	Total.
1901	20,615,983	1,179,900	21,795,883
1902	24,998,142	1,403,588	25,401,730
1903	23,391,887	1,882,394	25,274,281
1904	21,052,877	2,608,229	23,661,106
1905	28,768,781	3,462,348	32,231,129
1906	31,843,090	4,558,127	36,401,217
1907	35,171,665*	5,607,899	40,779,564
1908	21,832,292	4,201,226	26,033,518
1909	33,060,421	6,254,644	39,315,065
1910	34,570,076	7,138,734	41,708,810
1911	27,703,644	7,847,845	35,551,489
1912	32,868,435	11,115,164	43,983,599
1913	33,584,830	12,714,700*	46,299,530*
1914	23,335,971	11,219,943	34,555,914

* Maximum.

Number of Ovens at End of Year.

	Beehive.	Retorts.
1900	57,399	1,085
1901	62,786	1,165
1902	67,406	1,663
1903	71,378	1,956
1904	80,689	2,910
1905	84,461	3,103
1906	90,354	3,547
1907	95,996	3,684
1908	97,419	3,799
1909	99,993	3,989
1910	100,362*	4,078
1911	99,255	4,624
1912	97,019	5,211
1913	96,962	5,688*
1914	93,946	5,809

Maximum.

At the end of 1914 there were 614 by-product ovens under construction. Precisely how many of these have been completed we do not know, but there was probably a considerable number. It is stated, apparently on good authority, that more than 1,000 retort ovens are now under construction, and there are two or three projects, certain of accomplishment, against which construction work has not yet been started. While we have no complete list, a few instances may be mentioned: South Bethlehem, Steubenville, Wheeling, (Wheeling Steel & Iron Company), Youngstown (Republic), Cleveland (Corrigan, McKinney & Company), Canton, Toledo and Duluth. These instances, cited chiefly from recent

ory, involve more than 700 retort ovens.

There is every reason to believe, therefore, that the retort ovens built and building, deducting a few ovens built that have not lately been active and may be abandoned, easily exceed 7,000. As to capacity, we estimate from the 1913 production statistics, allowing for the idleness caused by commercial conditions, the average output per oven was about 2,700 tons a year. For the ovens now being built outputs as high as 4,000 tons are claimed. Certainly it would be very conservative to estimate the capacity of 5,500 ovens at 2,700 tons and the capacity of the remaining 1,500 and newest ovens at 3,200 tons, which would give us 20,000,000 tons as the prospective by-product coke capacity. As to the beehive capacity, there was 35,171,665 tons produced in 1907, with some idleness towards the close of the year, and with 95,996 ovens in existence at the end of the year. Now there are 93,946 ovens reported, with a larger proportion of large ovens, particularly of the new rectangular "push oven" type, than in 1907, so that we think it is conservative to estimate the beehive capacity at 40,000,000 tons, making a total capacity of 60,000,000 tons.

As the great bulk of coke is used as blast furnace fuel, and for remelting foundry pig iron, the coke requirements of the country may be assumed to be always in close relation to the blast furnace production. A comparison of coke production with pig iron production, over a period of years, shows that the relation has varied but slightly, and using a factor determined by averaging recent years we find that if our blast furnace capacity is 35,000,000 tons a year, its full employment would be attended by a demand for a total of 52,000,000 short tons of coke. A few furnaces are being built, but we do not think that by the time all the by-product ovens now being built are completed it will be possible for the country to make a great deal more than 35,000,000 tons of pig iron in a year. Working backward from the 60,000,000 tons of coke, it would require 40,500,000 tons of pig iron in a year to correspond with 60,000,000 tons of coke.

TOPICAL TALKS ON IRON.

XXIX. Where is the 400,000,000 tons of iron?

In our last Topical Talk we developed the view that there is 400,000,000 tons of iron in the United States in service, and promised to make an effort this month to indicate in part where the iron is. Of course in a case like this the term iron is used in a generic sense and includes steel, which is a form of iron, as well as wrought iron and iron castings.

In an attempt to make an inventory of the iron in the United States one naturally turns to the railroads first, for a great deal can be accounted for in that quarter. When the railroads were being built they were very large buyers, while in other lines the consumption was light relative to present requirements and now that the railroads are built their requirements have decreased relatively. Thus the proportion of iron in use by the railroads is greater than the proportion they take annually of fresh supplies.

On June 30, 1914, there was 377,102 miles of railroad track in the United States operated by the steam roads. If the rails therein averaged 80 pounds per yard they would weigh 47,500,000 gross tons, while at 85 pounds, probably a high estimate, the weight would be 50,500,000 tons. Hence it is about right to set down 50,000,000 tons as the weight of rails and track fastenings in service on the steam roads. That includes the short stretches of track that have been electrified, but not the regular electric roads.

On the same date the steam roads had 64,760 locomotives, the weight of which with tenders, we estimate at 5,500,000 gross tons. There were 53,406 cars in passenger service, 184,769 in company service and 2,127,617 in freight service, and we estimate the iron and steel contained in these cars at about 33,000,000 gross tons.

The foregoing items total 88,500,000 gross tons, for June 30, 1944, and we may call this 90,000,000 tons for January 1, 1945. It is not well to attempt to estimate here the steel in railroad bridges, buildings, etc., be-

Besides the regular steam road tonnages, there are privately owned cars running on the steam roads, also a large mileage of electric lines with their cars, and quite a mileage of industrial track in factories, mines logging operations, etc., together with many small cars. We estimate the steel thus involved, exclusive of structural steel, at 20,000,000 gross tons.

The production of structural shapes to January 1, 1915, has been about 35,000,000 gross tons, only a very small proportion of which was produced prior to 20 years ago. In fabricated steel a large tonnage of plates is used, as well as some bars, rivets, bolts, etc., while a relatively small proportion of the structural shapes produced passes into cars and other uses not strictly structural. Only a small proportion of the fabricated steel of the past 20 years has been wrecked, while on the other hand there survives considerable cast and wrought iron in old structurals. We estimate the iron and steel in the framework of bridges and buildings now extant, railroad and otherwise, at 40,000,000 gross tons, this not including pipe, sheet iron and other accessories in buildings.

Thus in track and equipment of all sorts, and bridges and buildings, we have accounted for 150,000,000 gross tons of iron and steel out of an estimated total of 400,000,000 gross tons.

One may think that 250,000,000 tons is a great deal to be left for the remaining iron and steel in service. It is natural to think so, perhaps, because the items we have inventoried are the conspicuous ones. That is the reason we were able to consider them in detail. The rest is relatively inconspicuous, because it is so widely distributed.

Using round figures the population of the United States is about 100,000,000, or 20,000,000 families. There would be, outside of track, rolling stock and the framework of bridges and buildings, about 100,000 tons per family. If the family is on a farm it easily has in service several tons; in machinery, fences, piping, etc. If the men of the family work in factories, there is in many cases several tons of machinery per family. In the iron and steel industry the proportion is particularly large, as a 100-ton machine is a small affair with

hundreds of tons of iron and steel in the equipment. The vessels on the great lakes involve many tons of iron and steel per man employed. Each automobile represents the larger part of a ton, while the Fords, on account of their great number, account for something like a quarter million tons.

Apart from the iron and steel suggested

in the foregoing paragraph, which may be regarded as more or less individual, there are large tonnages locked up in more general or public works, water and gas distributing systems, oil and gas pipe lines, electric transmission lines and similar classes of service.

ILLUMINATING PLATE AND JOBBING MILL STATISTICS.

The statistics of sheet and plate production in 1913 and 1914 illustrate in striking manner how in times of good demand the orders for light plates go chiefly to the jobbing mills, while in times of poor demand the plate mills capture a large part of the business. The statistics as gathered are grouped as returns from the plate mills and returns from the sheet mills. The plate mills report their output in plates quarter-inch and heavier, and in lighter plates, while the sheet and jobbing mills report their output in sheets 13 gauge and lighter and in material 12 gauge and heavier. The figures reported by the respective groups of mills, representing gross tons, are as follows:

Production of Sheared Plates, Under 1/4-inch, and Sheets, 12 Gauge and Heavier.

	1913.	1914.
Plate mills	197,697	320,337
Sheet mills	252,337	125,272
Total	450,034	445,609

The first item increased 49%, the second item decreased 50% and the total decreased a trifling matter of .98 of one per cent.

What occurred, of course, was that as 1913 was a year of relatively good demand,

a very fair amount of tonnage going, and plates 1/4-inch and heavier quoted at an average slightly above 1.40c, the plate mills went after plate tonnage, and left the light material alone, whereby the "sheet and jobbing mills", but practically the jobbing mills, had a good tonnage demand. In 1914, when our daily quotations on plates ran a trifle under 1.15c as an average for the year, some of these plate mills went after the light material, with a result that their output was largely increased, while the production of the jobbing mills was cut in half. The total demand for all such material having decreased less than one per cent, the respective mills would have had the same tonnage in 1914 as in 1913 if they had accepted only the same class of orders. When, however, the plate mill finds it hard to get sufficient tonnage, and prices are low, it is quite content to accept orders for light material, the cutting down of output being of no consequence, as there is capacity to spare in any event. The jobbing mills, however, cannot follow in the competition, as their costs are higher.

The output of black sheets, 13 gauge and lighter, suffered a decrease of only 11% in 1914, the output being 1,302,355 tons. The output of black plate and tin plate increased.

IRON AND STEEL.

THE SITUATION.

Merchant blast furnaces in operations are sold up practically to the end of the year and have a limited tonnage on books for the first half of next year. About two-thirds of the total merchant furnace capacity of the country is in operation.

The steel mills have actual specifications on books for an average of about six weeks rolling, and with business coming in at a rate suggesting the probability that capacity will be fully engaged throughout the year. With trifling exceptions the open-hearth steel departments are in full operation, and crowding to get out the maximum tonnage, while Bessemer steel departments are working at an average close to capacity.

Merchant bar mills, wire departments and tin plate mills are operating substantially at capacity in all instances, most mills being under pressure to get out more tonnage. Employment of capacity in other finishing departments ranges generally from 60 to 90%. The finishing capacity is as usual in excess of the steel making capacity. It may be roughly estimated that if the maximum possible tonnage steel ingots were produced and distributed equally among all finishing departments the latter would be able to operate at about 85% of their respective capacities.

Pig iron prices are firmly maintained at recent advances, and show an advancing tendency, but this may be checked by increasing production. Steel prices are strong and show an advancing tendency, with no influences visible that would tend to check the advance.

The ordinary domestic consuming industries, with but relatively unimportant exceptions, are not abnormally or even normally active. The structural trade is slack, ordinary building is rather slow, machine shops and foundries except when engaged directly or indirectly in business arising from the war, are only moderately active, the amount of railroad material being produced is not above the average of the past eight years, regarded in their time as constituting a period of light railroad development, oil development continues practically at a standstill, and other and similar instances could be cited. A distinct exception can be made of the auto-

mobile industry, which is busy even apart from its export trade, but its total steel tonnage consumption runs only into hundreds of thousands of tons a year.

It may be added that the steel export trade to neutral countries is small, below the average of the past few years, and probably amounting to not much over 100,000 tons a month.

Export Demand.

The export demand is heavy and increasing, and is chiefly for war purposes, or for peace purposes which would not be supplied in this country were it not for the war. Current buying is, in general, in excess of the current rate of shipping, and against old orders shipments are increasing in some instances, for instance as machine shops taking steel rounds from mills are increasing their rate of finishing the steel.

The August Movement.

Purchases of pig iron were larger in August than in July but in point of tonnage were not such as would have attracted a great deal of attention or have caused noteworthy price advances. Either on account of the already sold up condition of the furnaces in operation, or because the minds of both buyers and sellers were unusually ready to accept price advances as natural by reason of the extremely prosperous condition of the steel trade and the general influence of war in making prices more flexible, or more likely a combination of the two influences, pig iron prices rose during August decidedly more than would ordinarily be expected from a consideration merely of the tonnage demand in the market.

Buying of steel in August was continued largely to the purchase of war material and to specifications on old contracts, chiefly at prices so far below current quotations that the buyers undertook no risk in using the specifications. In a generally rising steel market there is naturally a tendency upon the part of holders of contracts to speculate to an extent, in addition to the necessary provision they make in increasing stocks against the slower deliveries promised by the mills. Past experiences have shown that it is never possible at the moment to determine how much of the increase in buying represents, respectively, increasing actual consumption, the laying in of stocks to carry on busi-

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ness when mills deliveries have fallen behind, and pure speculation in taking material expected to be put into consumption before the market has fallen to the level at which such material is billed.

There was relatively no strictly new buying of steel in August. Structural lettings were light, railroads placed very few orders, and jobbers and manufacturing consumers did not contract largely. They may have desired to do so; the mills were reserved about entering into additional contract commitments.

Pig Iron.

Our composite pig iron advanced \$1.20 during August, against 35 cents during July, and practically no change of moment during the first six months of the year. Advances occurred in August in all descriptions of pig iron making up our composite, and by very nearly uniform amounts. An average advance of \$1.20 in a month is by no means unparalleled. Even in recent

years there have been such sharp rises in pig iron, and it may be remarked that August has been a particularly fruitful month for such advances. What is striking about the movement is that it occurred when the total tonnage turnover was less than ever attended advances of such extent in the past, and that it occurred when nearly one-third of the merchant blast furnace capacity of the country was still idle. The condition suggests the hypothesis that the advance might not have been so rapid if the demand had been broader, that if idle furnaces had been able to sell sufficient tonnages individually to justify their getting into blast their offerings would have curbed the advance. Conceive a condition in which the operating furnaces are well sold up, and individual idle furnaces cannot quickly sell say 20,000 to 40,000 tons apiece, and the idea of a market advancing sharply because it is narrow in point of

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	Bessemer, Basic, No. 2 fdy, Basic				No. 2X fdy, Cleve-			No. 2 fdy —		Ferro- Fur-	
	Valley ———				Phila.	Phila	Buffalo.	Chi-	Birm-	mangan-	nace
					Phila.	Phila	Buffalo.	cago.	ingham,	ese.*	coke†
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.83
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	12.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡	1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70
Oct. .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65
Nov. .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60
Dec. .	13.75	12.50	12.75	13.50	14.23	13.13	13.30	13.40	9.67	68.00	1.60
Year .	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80	1.72
1915—											
Jan. ..	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55
Feb. .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55
Mar. .	13.60	12.50	12.75	13.50	14.35	12.74	13.25	13.39	9.42	78.00	1.53
April .	13.60	12.50	12.75	13.40	14.05	12.69	13.25	13.50	9.25	78.00	1.55
May ..	13.60	12.50	12.75	13.25	14.25	13.17	13.25	13.50	9.47	91.00	1.50
June ..	13.75	12.57	12.70	13.42	14.25	13.08	13.25	13.50	9.50	100.00	1.50
July ..	13.98	12.87	12.72	13.83	14.28	12.83	13.20	13.50	9.61	100.00	1.67
Aug. .	15.12	13.98	13.71	14.83	14.91	13.81	14.08	13.88	10.77	100.00	1.54

* Contract price, f.o.b. Baltimore; † Prompt, f.o.b. Connellsville ovens.

‡ Spot shipment; no contract market.

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tonnage is not as weird as might appear at first blush.

Before we admit as an accepted fact that the advances that have occurred in pig iron are but the beginning of a larger and continued advance we desire to watch the experiment of a reasonable number of the idle furnaces going forth to sell in the market the tonnages they need as backlog preparatory to applying the torch. At the moment we can only say that to all surface appearances the pig iron market is strong with a rapidly advancing tendency.

Steel Prices.

Unfinished steel became practically unquotable in August. Higher and higher prices were paid for open-hearth billets, up to nearly if not quite \$26 at Youngstown in thousand ton or larger lots. No sale made a market because as a rule the lot sold was the last the seller would sell until he had taken time to make a fresh survey of the situation. There were scarcely any sales of Bessemer billets. Sheet bars were even more neglected. The sheet and

tin plate mills were covered by contracts, but in any event could not have paid the sheet bars within several dollars a ton the prices paid for open-hearth billets, because their products were bringing too low prices.

Early in August the majority of large mills began quoting bars, plates and shapes at 1.35c as minimum, but even 1.30c had not been established as to plates. The large mills were very comfortably filled with business, absorbing all their steel even though some of their finishing departments were operating at much below their individual capacities. In the latter part of the month bars became firmly established at 1.35c as minimum, structural shapes tending strongly towards that figure, while plates at less than 1.30c practically disappeared.

Blue annealed sheets scored a sharp advance of \$3 a ton late in August, closing strong at 1.50c. Black sheets advanced practically as much, to 1.90c as minimum, and with some producers of open-hearth asking 1.95c or 2.00c.

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

	(Average from daily quotations, f.o.b. Pittsburgh.)									Composite
	Shapes.	Plates.	Bars.	Pipe.	Wire.	Cut Nails.	Sheets Black.	Tin plate.	Finished steel.	
1914—										
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	1.5079
June	1.12	1.10	1.12	80	1.32	1.50	1.58	1.81	2.75	1.4759
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	1.5421
September ..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	1.5236
November ..	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	1.4760
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	1.5132
1915—										
January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	1.4554
February ...	1.10	1.10	1.10	80¾	1.38	1.58	1.57	1.80	3.09	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.57	1.80	3.40	1.5098
April	1.20	1.20	1.20	80	1.37	1.57	1.57	1.80	3.40	1.5357
May	1.20	1.17	1.20	79	1.35	1.55	1.57	1.80	3.60	1.5741
July	1.25	1.22	1.27	79	1.38	1.58	1.57	1.74	4.65	1.5900
August ...	1.26	1.26	1.30	79	1.40	1.60	1.57	1.85	4.40	1.5900

IRON AND STEEL.

Of all finished steel products the pressure has been greatest upon merchant bars and wire products. In the latter sharp advances were made effective August 24th, \$1 a ton on nails to \$1.65 and \$2 on plain wire to 1.50c. The galvanizing differential was reduced from 80c to 60c August 16th and then advanced to 70c on August 23d.

The Future.

The common view in the iron and steel trade is that the industry is wound up to run at high pressure throughout the duration of the war, and possibly for some time thereafter. In some quarters it is thought the termination of the war would cause a sudden slump in steel activity. This, we think, is an entirely erroneous view. We have no views to express as to the probable duration of the war, but we have this view to express, that should there be at any time in the next twelvemonth a

peace movement which would stop active hostilities, the manufacture and delivery of war material would continue for some time at least with the same feverish activity now seen. For the steel trade after the war the prospects are (1) That there would be a sudden mobilization of American capital, leading to expansion in many directions and the consumption of much steel; (2) That the countries now at war, every one of them relatively large producers of iron and steel, would be able to expand their production of steel much more rapidly than they would be able to expand their consumption, so that a deluge of cheap steel would menace the American steel market. Given tariff protection against such a contingency, the demands upon the American steel industry for a year or two after the war might very easily be much greater than the actual consumptive demands at present.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909:

Quarter.	1915.	1914.	1913.
1st	\$12,457,809	\$17,994,382	\$34,426,802
2nd	27,950,055	20,451,596	41,219,813
3rd .....	.....	22,276,002	38,450,400
4th .....	.....	10,935,635	23,084,330
Year ....	.....	71,663,615	127,181,345

	1912.	1911.	1910.
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	50,063,512	29,522,725	37,365,187
4th	35,181,922	23,155,018	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643
1915..	4,255,749	4,678,196	.....	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, our own estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
	%	%	%	Tons.
November ..	70	59	-11	-117,420
December ..	50	40	-10	-114,239
January 1914	55	81	-28	+331,572
February ...	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,968
June	63	66	+ 3	+ 34,697
July	64	75	-11	-125,752
August	67	72	- 5	- 54,742
September ..	62	24	-38	-425,664
October ...	55	28	-27	-326,570
November ...	45	32	-13	-136,565
December ...	38	82	+44	+512,051
January 1915	44	81	+37	+411,928
February ...	57	66	+ 9	+ 96,800
March	67	60	- 7	- 89,622
April	71	63	- 8	- 93,505
May	76	85	+ 9	+102,354
June	79	112	+34	+413,598
July	82	104	+22	+250,144

IRON AND STEEL.

TIN PLATE MOVEMENT.

United States imports and exports of tin plate in gross tons have been as follows; the imports of course including those for drawback purposes:

	Imports	Exports
1906	56,984	12,082
1907	57,174	10,290
1908	58,490	11,878
1909	62,593	9,327
1910	66,640	12,459
1911	11,098	61,466
1912	2,053	81,694
1913	20,680	57,812
1914	15,411	59,549
January, 1915	1,608	7,014
February	265	5,834
March	53	10,500
April	44	9,084
May	24	7,218
June	75	8,024
Seven months	2,069	47,674

The maximum exports in a month were in April, 1912, 11,000 gross tons.

British tin plate exports have been as follows, in gross tons:

1912	481,123
1913	494,921
1914	455,497
January, 1915	29,216
February	25,101
March	36,170
April	40,133
May	33,727
June	33,986
July	39,528
Seven months	237,863

SHEET AND TIN PLATE PRODUCTION IN 1914.

While the production of pig iron, and of steel generally, decreased about 25% from 1913 to 1914, the output of sheets, 13 gauge and lighter, decreased only 11%, while the output of tin plate increased 17%. In the case of pig iron and steel, however, 1913 had seen the record output, while in the case of tin plate the record was made in 1912, and while the 1914 output was greater than that of 1913 it fell short of that of 1912 by 3%.

The production in 1914, with the per

centage change from 1913, is shown below:

	1913	1914	%
Black sheets	1,275,272	1,302,555	+2
12 and heavier	1,275,272	1,302,555	+2
13 and lighter	1,302,555	1,302,555	0
Total sheets	1,427,627	1,427,627	0
Tin mill products:			
Black plates	268,181	268,181	0
Other products	241,017	241,017	0
Total tin mill	1,179,198	1,179,198	0
Tin plate	865,975	865,975	0
Terne plate	65,266	65,266	0
Total	931,241	931,241	0

OUR STEEL MAKING CAPACITY.

In Excess of 38,000,000 tons of Steel Ingots.

The annual report of the United States Steel Corporation for 1914 stated that its plants operated at an average of 62% of capacity during the year. If this proportion obtained throughout the industry, the capacity compared with production in the past three years would be as follows:

	Steel ingots and castings.	Rolling steel.
1912	31,251,303	23,019,259
1913	31,300,874	23,412,986
1914	23,513,030	17,202,420
Estimated capacity	38,000,000	27,750,000

Since January 1, 1913, there has been completed about 5,000,000 tons of open-hearth capacity, and by far the major part of this can be regarded as having been potentially available in 1914. If we deduct this 5,000,000 tons from the 38,000,000 tons we have 33,000,000 tons, and we note that the actual production in 1912 was only 1,750,000 tons less than this, although the steel works did not operate full throughout 1912. Their operations ran 75 to 80% in the first quarter of the year, 90 to 95% in the second quarter, and substantially 100% in the third and fourth quarters, making an average of say 92% for the year and 92% of 33,000,000 tons is 30,400,000 tons. Thus the present capacity could easily be 38,000,000 tons even though the estimates made by the various builders of new plants since 1912, and totalling 5,000,000 tons, are

IRON AND STEEL.

It is not possible to estimate the present capacity of the United States steel mills. The total capacity of the United States steel mills, including the capacity of the mills in the United States and the capacity of the mills in the United States, is estimated to be 29,000,000 tons of rolled steel. The actual capacity for rolling steel is undoubtedly in excess even of 20,000,000 tons, an excess of rolling capacity being necessary as orders are not uniformly distributed among the different classes of mills from year to year. The amount of finished steel that can be turned out in a year is the amount for which the unfinished steel can be sold.

IMMIGRATION STATISTICS.

Years mentioned refer to fiscal years ended June 30th. Aliens admitted, both immigrant and non-immigrant, and aliens departed, both emigrant and non-emigrant, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1912	1,011,155	615,292	+395,863
1913	1,421,227	611,924	+809,303
1914	1,405,081	658,865	+746,216
1915	72,915	14,885	+58,030

	Admitted.	Departed.	Change.
August	51,231	54,112	-2,881
September	44,924	47,557	-2,633
October	45,241	39,410	+5,831
November	45,225	40,748	+4,477
December	27,458	42,325	-14,867
January, 1915	20,684	31,556	-10,872
February	18,704	14,188	+4,516
March	26,335	15,167	+11,168
April	31,795	17,670	+14,095
May	32,363	17,624	+14,739
June	28,499	21,562	+6,937
July	27,007	16,615	+10,392
Year 1915	434,244	384,174	+50,070

United States citizens arrived and departed, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1913	286,604	175,702	+110,902
1914	286,586	168,797	+117,789
1915	239,579	112,412	+127,167

Net change in population caused by the movement of both aliens and citizens: 1913, +754,205; 1914, +687,065; 1915, +117,297.

RAILROAD EARNINGS.

Railroad earnings per mile of road for roads having annual operating revenues of over \$1,000,000, this being about 120,000 miles or about 90% of the total steam railway mileage; compiled by the Bureau of Railway Economics from duplicates of reports furnished the Interstate Commerce Commission.

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
August	\$1,118	\$837	\$346	\$1,114	\$785	\$339
September	1,114	856	388	1,111	789	386
October	1,117	854	463	1,182	781	401
November	1,114	891	423	1,100	786	383
December	1,180	884	557	1,020	792	292
January	1,110	821	296	990	728	262
February	967	795	226	936	716	220
March	914	746	168	895	678	219
April	991	801	290	1,012	720	292
May	998	782	256	1,010	722	288
June	1,007	800	247	1,000	732	308

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January . . .	\$14,514,394	\$18,768,391	\$18,451,914	\$25,141,409	\$16,196,836	\$18,055,421
February . . .	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	20,985,595
April	16,529,260	24,916,912	26,789,853	27,126,041	20,639,569	25,402,649
May	17,658,042	20,616,795	28,050,347	26,718,970	19,734,045	26,536,612
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	31,157,103
July	16,108,102	17,154,772	24,917,952	24,170,704	16,737,552	
August	17,628,537	20,013,557	25,450,107	23,947,440	19,428,773	
September . . .	16,776,178	19,875,308	23,286,040	22,831,082	12,551,192	
October	17,452,085	20,220,833	25,211,559	25,193,887	16,455,832	
November . . .	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December . . .	18,390,710	22,186,996	25,150,864	22,115,791	14,939,613	
Totals . . .	\$201,271,903	\$249,656,411	\$289,128,420	\$293,934,160	\$199,861,684	\$139,106,041

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,573	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	174,313
April	93,285	100,911	117,921	228,149	267,313	259,689	161,952	223,240
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	263,649
June	69,770	114,724	120,601	174,247	215,188	243,108	144,539	355,492
July	86,796	109,850	121,578	167,855	212,778	267,159	114,790	
August	86,244	105,690	131,391	177,902	282,645	269,856	86,599	
September . . .	76,732	97,641	119,155	181,150	248,613	213,057	96,176	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	
Totals	961,242	1,241,567	1,540,895	2,187,724	2,948,466	2,730,681	1,549,503	1,300,761

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. . .	154,118	175,463	101,804	152,886
Feb. . .	129,693	188,734	112,574	78,773
Mar. . .	157,469	164,865	68,549	88,402
April . .	178,592	174,162	111,812	91,561
May . .	194,482	191,860	125,659	98,974
June . .	180,122	241,069	188,647	118,575
July . .	185,677	272,017	141,866	
Aug. . .	178,828	213,139	135,693	
Sept. . .	180,571	295,424	109,176	
Oct. . .	202,125	274,418	114,341	
Nov. . .	163,017	179,727	90,222	
Dec. . .	199,982	223,892	51,054	

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan. . .	33,071	20,008	21,740	17,776	10,568
Feb. . .	20,812	11,622	25,505	14,757	7,506
Mar. . .	23,333	15,466	27,167	21,879	8,025
April . .	22,392	12,481	25,742	19,585	16,565
May . .	23,347	15,949	28,728	28,173	18,916
June . .	29,399	21,407	36,597	21,176	21,290
July . .	15,782	17,882	39,694	25,282	
Aug. . .	10,944	20,571	18,740	28,768	
Sept. . .	14,039	18,740	19,941	18,429	
Oct. . .	21,075	25,559	20,840	20,754	
Nov. . .	13,880	24,154	25,809	24,165	
Dec. . .	19,665	27,721	26,454	9,493	

Totals 2,194,576 2,594,570 1,757,608 1,527,771

Totals 256,994 227,012 371,200 290,794 166,780

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. Aug. 31
	High.	Low.	High.	Low.	High.	Low.	
Bessemer, valley	17.25	14.25	14.25	13.75	15.75	13.60	15.75
Basic, valley	16.50	12.50	13.25	12.50	14.50	12.50	14.50
No. 2 foundry, valley	17.50	13.00	13.25	12.75	14.50	12.50	14.50
No. 2X fdy. Philadelphia. . .	18.50	14.50	15.00	14.20	15.50	14.00	15.50
No. 2 foundry, Cleveland . .	17.75	13.50	14.25	13.25	14.50	13.00	14.50
No. 2X foundry, Buffalo. . .	18.00	13.00	13.75	12.25	14.75	11.75	14.75
No. 2 foundry, Chicago	18.00	14.00	14.75	13.00	14.00	13.00	14.00
No. 2 South'n Birmingham . .	14.00	10.50	10.75	9.50	11.00	9.25	11.00
Scrap Iron and Steel.							
Melting steel, Pittsburgh . .	15.00	10.75	12.00	9.75	14.00	11.00	14.00
Heavy melt. steel, Chicago . .	13.25	9.00	11.00	8.00	12.25	8.75	12.25
No. 1 R. R. wrought, Pitts. . .	15.75	11.50	12.75	10.00	13.00	10.75	13.00
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	13.00	11.00	13.00
Heavy steel scrap, Phila. . . .	14.75	9.75	11.25	9.00	14.25	9.50	14.25
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.30	1.20	1.30
Iron bars, Philadelphia	1.67½	1.22½	1.27½	1.12½	1.46	1.12½	1.46
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.35	1.10	1.35
Tank plates, Pittsburgh	1.50	1.20	1.20	1.05	1.30	1.10	1.30
Structural shapes, Pitts. . . .	1.50	1.20	1.25	1.05	1.50	1.10	1.30
Grooved steel skelp, Pitts. . .	1.45	1.15	1.20	1.12½	1.25	1.12½	1.25
Black sheets, Pittsburgh . . .	2.35	1.80	1.95	1.80	1.90	1.70	1.90
Galv. sheets, Pittsburgh . . .	3.50	2.80	3.00	2.75	3.00	2.65	3.50
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.20	3.10	3.19
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.55	1.55	1.55
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.65	1.50	1.65
Steel pipe, Pittsburgh	79%	80%	79½%	81%	79%	81%	79%
Connellsville Coke at ovens.							
Prompt furnace	4.25	3.75	2.00	1.60	1.75	1.50	1.60
Prompt foundry	4.50	2.40	2.50	2.00	2.30	2.00	2.30
Metals—New York.							
Straits tin	51.00	36.75	65.00	28.50	57.00	32.80	33.50
Lake copper	17.75	14.50	15.50	11.30	20.62½	13.00	17.68¾
Electrolytic copper	17.65	14.12½	14.87½	11.10	20.50	12.80	17.50
Casting copper	17.45	13.87½	14.65	11.00	19.62½	12.70	16.75
Sheet copper	22.00	19.75	20.25	16.50	25.00	18.75	23.00
Lead (Trust price)	4.75	4.00	4.15	3.50	7.00	3.70	4.20
Spelter	7.35	5.10	6.20	4.75	27.50	5.70	16.62½
Chinese & Jap. antimony . . .	9.00	6.00	18.00	5.30	38.00	13.00	29.00
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	37.00	18.75	36.00
Silver	63¾	56¾	59¾	47½	51½	46½	46½
St. Louis.							
Lead	4.72½	3.85	4.10	3.35	7.50	4.10	4.80
Spelter	7.17½	4.95	6.00	4.60	27.00	5.55	16.31¼
Sheet zinc (f.o.b. smelter) . .	9.00	7.00	8.75	7.00	33.00	9.00	16.00
London.							
Standard tin, prompts	232	166½	188	132	190	148½	150½
Standard copper, prompts . . .	77½	61¾	66¾	49	86¼	57½	68
Lead	21½	15¾	24	17½	28½	18½	22½
Spelter	26¾	20¾	31	21¼	110	28¾	72
Silver	293½d	253½d	273½d	223½d	243½d	223½d	23d

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. Aug. 31
	High.	Low.	High.	Low.	High.	Low.	
Atchison, Top. & Sante Fe...	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100	80	105	82	101 $\frac{5}{8}$
Atch. Top. & Sante Fe, pfd..	102 $\frac{1}{4}$	96	101	96	101	96	98 $\frac{1}{4}$
Baltimore & Ohio	106 $\frac{3}{8}$	90 $\frac{3}{4}$	98	67	84	64	81 $\frac{5}{8}$
Canadian Pacific	266 $\frac{3}{4}$	204	220	154	174	138	151 $\frac{3}{4}$
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	49	49	35	47 $\frac{1}{8}$
Chicago, Mil. & St. Paul	116 $\frac{1}{4}$	96 $\frac{3}{4}$	101	84 $\frac{3}{4}$	98	77 $\frac{1}{4}$	83 $\frac{3}{8}$
Erie R. R.	32 $\frac{1}{2}$	20 $\frac{1}{4}$	32	20	30	19	28 $\frac{7}{8}$
Great Northern, pfd.	132 $\frac{5}{8}$	115 $\frac{1}{2}$	134 $\frac{1}{2}$	111	122 $\frac{1}{2}$	112	118 $\frac{3}{4}$
Lehigh Valley	163 $\frac{1}{8}$	141 $\frac{1}{4}$	156	118	148	129	143 $\frac{1}{4}$
Louisville & Nashville	142 $\frac{1}{4}$	126 $\frac{1}{4}$	141	125	125	104	116
Missouri, Kansas & Texas ..	29 $\frac{1}{8}$	18 $\frac{1}{8}$	24	8 $\frac{1}{2}$	15	7	83 $\frac{3}{8}$
Missouri Pacific	43 $\frac{1}{8}$	21 $\frac{1}{4}$	39	7	18 $\frac{1}{4}$	13 $\frac{1}{4}$	41 $\frac{1}{8}$
New York Central	109 $\frac{3}{4}$	90 $\frac{3}{8}$	96	75	96	81	91 $\frac{7}{8}$
N. Y., N. H. & Hartford	129 $\frac{7}{8}$	65 $\frac{5}{8}$	78	49 $\frac{1}{2}$	71 $\frac{1}{2}$	43	67
Northern Pacific	122 $\frac{3}{8}$	101 $\frac{3}{4}$	118	97	112 $\frac{1}{2}$	99	107 $\frac{1}{2}$
Pennsylvania R. R.	123 $\frac{3}{4}$	106	115	102	111 $\frac{1}{2}$	103	108 $\frac{1}{2}$
Reading	171 $\frac{3}{4}$	151 $\frac{1}{8}$	172 $\frac{1}{2}$	37	157	138 $\frac{3}{4}$	148 $\frac{3}{8}$
Rock Island	24 $\frac{7}{8}$	11 $\frac{1}{2}$	16 $\frac{1}{2}$	5 $\frac{1}{8}$	11 $\frac{1}{8}$		3 $\frac{3}{8}$
Southern Pacific	110	83	99 $\frac{1}{2}$	81	95	81	88 $\frac{3}{4}$
Union Pacific	162 $\frac{1}{4}$	137 $\frac{1}{4}$	164 $\frac{3}{8}$	112	134 $\frac{1}{2}$	115 $\frac{3}{4}$	131 $\frac{7}{8}$
Wabash	6	2	4 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$		1 $\frac{3}{8}$
Industrials.							
Am. Beet Sugar	50 $\frac{1}{2}$	19 $\frac{3}{4}$	33	19	68 $\frac{1}{2}$	33 $\frac{1}{4}$	65
American Can	46 $\frac{3}{8}$	21	35	19 $\frac{1}{2}$	64 $\frac{3}{4}$	25	59 $\frac{1}{4}$
American Can Pfd.	129 $\frac{1}{2}$	80 $\frac{1}{2}$	96	80	107 $\frac{1}{2}$	89	105
Am. Car & Foundry	56 $\frac{3}{8}$	36 $\frac{1}{2}$	53	42 $\frac{1}{2}$	73	40	69 $\frac{1}{4}$
Am. Cotton Oil	57 $\frac{3}{8}$	33 $\frac{1}{2}$	46	32	54 $\frac{1}{2}$	39	51
Am. Locomotive	44 $\frac{1}{2}$	27	37 $\frac{1}{4}$	29 $\frac{1}{2}$	68	19	53 $\frac{3}{4}$
Am. Smelting & Refining	74 $\frac{3}{4}$	58 $\frac{1}{2}$	71	50 $\frac{1}{2}$	84 $\frac{1}{2}$	56	80 $\frac{1}{4}$
Brooklyn Rapid Transit	92 $\frac{3}{4}$	83 $\frac{3}{4}$	94 $\frac{1}{4}$	79	93	83 $\frac{1}{2}$	85 $\frac{3}{8}$
Chino Copper	47 $\frac{3}{8}$	30 $\frac{3}{8}$	44	31 $\frac{5}{8}$	49 $\frac{3}{4}$	32 $\frac{3}{4}$	46 $\frac{3}{8}$
Colo. Fuel & Iron Co.	41 $\frac{1}{2}$	24 $\frac{1}{2}$	34	20 $\frac{1}{2}$	46 $\frac{1}{2}$	21 $\frac{3}{4}$	42 $\frac{1}{4}$
Consolidated Gas	142 $\frac{3}{8}$	125 $\frac{1}{8}$	139	112 $\frac{1}{2}$	131 $\frac{3}{4}$	113 $\frac{1}{4}$	127
General Electric	187	129 $\frac{3}{4}$	150 $\frac{1}{2}$	137 $\frac{1}{2}$	178 $\frac{1}{2}$	138	174 $\frac{1}{8}$
Interborough Metropolitan ..	19 $\frac{5}{8}$	12 $\frac{3}{8}$	16 $\frac{1}{2}$	10 $\frac{3}{4}$	24 $\frac{1}{4}$	10 $\frac{1}{2}$	21 $\frac{7}{8}$
International Harvester	111 $\frac{1}{2}$	96	113 $\frac{1}{2}$	82	114	90	107
Lackawanna Steel	49 $\frac{7}{8}$	29 $\frac{7}{8}$	49	26 $\frac{1}{2}$	72	28	70 $\frac{1}{2}$
National Lead	56 $\frac{1}{4}$	40	52	40	70 $\frac{3}{4}$	44	64 $\frac{1}{2}$
Ray Consolidated Copper	22	15	22	15	26	15	22 $\frac{3}{8}$
Republic Iron & Steel	28 $\frac{3}{8}$	17	27	18	47 $\frac{1}{4}$	19	43
Republic Iron & Steel, pfd..	92 $\frac{1}{4}$	72	91 $\frac{1}{2}$	75	102	72	101 $\frac{1}{2}$
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19	56	22	53 $\frac{3}{8}$
Texas Co.	132 $\frac{1}{2}$	99	149	112	157	120	152 $\frac{5}{8}$
U. S. Rubber	69 $\frac{1}{2}$	51	61	44	74 $\frac{1}{2}$	44	49 $\frac{1}{2}$
U. S. Steel Corporation	69 $\frac{1}{2}$	49 $\frac{1}{4}$	67	48	77	38	75
U. S. Steel Corporation, pfd..	110 $\frac{3}{4}$	102 $\frac{1}{2}$	112 $\frac{3}{4}$	103 $\frac{1}{4}$	113 $\frac{1}{4}$	102	112 $\frac{1}{2}$
Utah Copper	60 $\frac{5}{8}$	39 $\frac{5}{8}$	59 $\frac{3}{8}$	45 $\frac{3}{8}$	71	48	67 $\frac{1}{2}$
Van-Carolina Chem.	43 $\frac{1}{8}$	22	34	17	41	15	39 $\frac{3}{4}$
Western Union Telegraph ..	75 $\frac{1}{8}$	54	66	50	75 $\frac{1}{4}$	57	74 $\frac{1}{4}$

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which quotations were changed.

	Bars	1.10	to 1.15	
	Shapes	1.10	to 1.15	
	Plates	1.10	to 1.15	
	Tin plate	3.30	to 3.35	
Aug 7	Tin plate	3.25	to 3.40	
	Sheets	1.80	to 1.85	
	Sheets	1.80	to 1.85	
	Bars	1.15	to 1.20	
	Shapes	1.15	to 1.20	
	Tin plate	3.40	to 3.60	
	Wire nails	1.55	to 1.60	
	Sheets	1.90	to 2.00	
Sept 16	Tin plate	3.60	to 3.30	
	Sheets	2.00	to 1.95	
	Bars	1.20	to 1.15	
	plates	1.20	to 1.15	
	Tin plate	3.30	to 3.25	
Oct. 5	Sheets	1.95	to 2.00	
	Shapes	1.20	to 1.15	
	Sheets	2.00	to 1.90	
	Plates	1.15	to 1.10	
Nov. 2	Pipe (extra 2 1/4% removed)	80%	to 81%	
	Bars	1.15	to 1.10	
	Shapes	1.15	to 1.10	
	Sheets	1.90	to 1.85	
	Plates	1.10	to 1.05	
	Wire nails	1.60	to 1.55	
Dec. 1	Bars	1.10	to 1.05	
	Shapes	1.10	to 1.05	
	Tin plate	3.25	to 3.20	
	Wire nails	1.55	to 1.50	
	Tin plate	3.20	to 3.10	
	Sheets	1.85	to 1.80	
Jan. 1	Bars	1.05	to 1.10	
	Plates	1.05	to 1.10	
	Shapes	1.05	to 1.10	
	Wire nails	1.50	to 1.55	
Feb 11	Wire nails	1.55	to 1.60	
	Pipe	81%	to 80%	
	Galv. sheets	3.00	to 3.25	
	Galv. sheets	3.25	to 3.40	
Mar. 1	Bars	1.10	to 1.15	
	Plates	1.10	to 1.15	
	Shapes	1.10	to 1.15	
	Wire galvanizing			
	differential	60c	to 50c	

1915 -			
Mar. 15	Shafting	68%	to 70%
	(New list, f.o.b. Pittsburgh		
	instead delivered)		
" 17	Wire galvanizing		
	differential	50c	to 60c
April 1	Boiler tubes		75%
" 1	Bars	1.15	to 1.20
" 1	Plates	1.15	to 1.20
" 1	Shapes	1.15	to 1.20
" 14	Wire nails	1.60	to 1.55
May 1	Steel pipe	80%	to 79%
" 1	Boiler tubes	75%	to 74%
" 1	Tin plate	3.20	to 3.10
" 12	Plates	1.20	to 1.15
" 17	Galvanized sheets	3.40	to 3.60
" 24	Galvanized sheets	3.60	to 3.75
June 1	Galvanized pipe	62%	to 63 1/2%
" 1	Galvanized sheets	3.75	to 4.25
" 1	Wire galvanizing		
	differential	60c	to 80c
" 8	Sheets	1.80	to 1.75
" 9	Galv. sheets	4.25	to 5.00
July 1	Bars	1.20	to 1.25
" 1	Plates	1.15	to 1.20
" 1	Shapes	1.20	to 1.25
" 2	Sheets	1.75	to 1.70
" 6	Wire nails	1.55	to 1.60
" 7	Sheets	1.70	to 1.75
" 14	Galvanized sheets	5.00	to 4.50
" 16	Boiler tubes	77%	to 72%
" 20	Plates	1.20	to 1.25
" 20	Wire nails	1.60	to 1.55
" 21	Bars	1.25	to 1.30
" 28	Galvanized sheets	4.50	to 4.25
" 29	Wire nails	1.55	to 1.60
Aug 3	Shapes	1.25	to 1.30
" 4	Sheets	1.75	to 1.80
" 6	Black sheets	1.80	to 1.85
" 19	Blue ann. sheets	1.35	to 1.40
" 23	Wire galvanizing	60c	to 70c
" 24	Wire	1.40	to 1.50
" 24	Wire nails	1.60	to 1.65
" 24	Wire galvanizing	80c	to 60c
" 25	Black sheets	1.85	to 1.90
" 27	Plates	1.25	to 1.30
" 31	Bars	1.30	to 1.35
" 31	Blue ann. sheets	1.40	to 1.50

COMPOSITE STEEL.

Computation for September 1, 1915.

Pounds.	Group.	Price.	Extension.
2	Bars	1.35	1.35
1	Plates	1.30	1.30
1	Shapes	1.30	1.30
1	Pipe (43.3)	2.10	2.10
1	Wire nails	1.65	2.45
1	Sheets (28 lb)	1.30	1.30
1	Tin plates	3.10	1.35
10 pounds			16.350
One pound			1.6350

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	1.5381
June	1.6817	1.5794	1.7719	1.4750	1.5312
July	1.6701	1.6188	1.7600	1.4805	1.5692
Aug.	1.6394	1.6784	1.7400	1.5421	1.6059
Sept.	1.6090	1.7086	1.7093	1.5632	.....
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

Melting Bundled No. 1 R. R. No. 1 No. 1 Heavy
Steel Sheet Wrought Cast Steel Melt'g.
Pitts. Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1913—

Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21

1914—

Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.52	11.51	11.71	10.57	9.55

1915—

Jan.	11.40	9.20	10.75	11.25	10.30	9.00
Feb.	11.70	9.25	10.75	11.25	10.70	9.20
Mar.	11.80	9.37	10.75	11.50	10.85	9.25
Apr.	11.65	9.37	10.75	11.85	11.10	9.13
May	11.65	9.37	10.75	11.85	11.25	9.50
June	11.75	9.37	10.75	11.85	11.25	9.75
July	12.62	9.60	11.00	12.00	11.85	10.50
Aug.	14.05	11.10	12.25	12.85	11.70	10.81

COMPOSITE PIG IRON.

Computation for September 1, 1915.

One ton Bessemer, valley	14.50
One ton Bessemer, valley	14.50
One ton No. 2 foundry	14.50
One ton No. 2 foundry, Phila	14.50
One ton No. 2 foundry, Rom	14.50
One ton No. 2 foundry, Ch'go	14.50
One ton No. 2 foundry, C. & S.	14.00
Two tons No. 2 Southern foundry	14.50
Computation	14.500
One ton	14.555

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	13.026
June	14.032	14.005	14.968	13.606	13.047
July	14.926	14.288	14.578	13.520	13.125
Aug.	13.874	14.669	14.565	13.516	14.082
Sept.	13.819	15.386	14.692	13.503	.....
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

**UNFINISHED STEEL
AND IRON BARS.**

Averaged from daily quotations:

	Billets Pitts.	Sheet bars Pitts.	Rods Pitts.	Iron bars Pitts.	Ch'go.
1914—					
Feb.	21.00	22.00	26.00	1.28	1.35 1.14
Mar.	21.00	22.00	26.00	1.28	1.35 1.15
Apr.	20.75	21.75	25.50	1.23	1.31 1.14
May	20.00	21.00	26.00	1.23	1.29 1.10
June	19.50	20.55	25.00	1.23	1.25 1.08
July	19.50	20.00	25.00	1.19	1.25 1.06
Aug.	20.17	21.08	25.25	1.18	1.27 1.07
Sep.	20.75	21.75	26.00	1.18	1.29 1.07
Oct.	20.00	20.70	26.00	1.14	1.29 1.01
Nov.	19.25	19.75	25.00	1.13	1.29 .96
Dec.	18.75	19.25	24.40	1.12	1.29 .91
Year	20.06	20.82	25.50	1.20	1.27 1.07
1915—					
Jan.	19.25	19.75	24.80	1.12	1.29 .97
Feb.	19.25	19.75	25.00	1.12	1.29 1.03
Mar.	19.30	19.80	25.00	1.13	1.29 1.10
Apr.	19.50	20.00	25.00	1.18	1.29 1.14
May	19.50	20.60	25.00	1.18	1.29 1.15
June	20.00†	20.50†	25.00	1.20	1.29 1.17
July	21.00†	21.00†	25.75	1.22	1.29 1.20
Aug.	22.50†	21.00†	27.00	1.43	1.25 1.22

* Premiums for Bessemer.

† Premiums for open-hearth

CAR BUYING.

Freight cars ordered:			
First half 1913	114,000		
Second half 1913	33,000		
Year 1913		147,000	
March	8,000		
April	10,000		
May	10,000		
June	15,000		
July	7,000		
August	3,100		
September	95		
October	1,725		
November	550		
December	1,150		
Year, 1914		80,000	
January 1915	3,300		
February	4,255		
March	1,287		
April	3,000		
May	20,210		
June	29,864		
Six months		61,916	
July	5,675		
August	4,260		

BRITISH EXPORTS.

According to the Board of Trade returns,
in tons of 2,240 pounds:

1914—	Pig iron.	Rails.	Tin Plate.	Total*
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	366,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct. ..	47,188	37,005	26,950	263,834
Nov. ...	49,666	16,181	30,942	240,617
Dec. ...	31,705	16,315	30,254	212,667
Year ..	90,405	435,440	435,497	3,977,468
1915—				
Jan. ...	21,138	24,411	29,216	230,204
Feb. ...	21,934	14,877	25,101	198,804
Mar. ...	20,172	17,572	36,170	239,342
Apr. ...	35,209	21,602	40,135	264,244
May ..	29,342	21,776	33,727	267,524
June ..	39,127	23,728	33,986	272,195
July ..	78,370	33,224	39,528	351,984

* Includes scrap, pig iron, rolled iron and steel cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers tools, etc.

OUR FOREIGN TRADE.

Value of merchandise imports and exports, and favorable trade balance, calendar years.

	Imports.	Exports.	Balance.
1900	\$829,149,714	\$1,477,946,113	\$648,796,399
1901	880,419,910	1,465,375,860	584,955,950
1902	989,316,870	1,360,685,933	391,369,063
1903	995,494,327	1,484,753,083	489,258,756
1904	1,035,909,190	1,451,318,740	415,409,550
1905	1,179,144,550	1,626,990,795	447,846,245
1906	1,320,501,572	1,798,243,434	477,741,862
1907	1,423,169,820	1,923,426,205	500,256,385
1908	1,116,374,087	1,752,835,447	636,461,360
1909	1,475,520,724	1,728,198,645	252,677,921
1910	1,562,904,151	1,866,258,904	303,354,753
1911	1,532,359,160	2,092,526,746	560,167,586
1912	1,818,133,355	2,399,217,993	581,084,638
1913	1,792,596,480	*2,484,018,292	*691,421,812
1914	*1,789,276,001	2,113,624,059	324,348,049
1913—			
Feb.	149,913,918	193,996,942	44,083,024
Mar.	155,445,498	187,426,711	31,981,213
April	146,194,461	199,813,438	53,618,977
May	133,723,713	194,607,422	60,883,709
June	131,245,877	163,404,916	32,159,039
July	139,061,770	160,990,778	21,929,003
Aug.	137,651,553	187,909,020	50,257,467
Sept.	171,084,843	218,240,001	47,155,158
Oct.	132,949,302	271,861,464	138,912,162
Nov.	148,236,536	245,539,042	97,302,506
Dec.	*184,025,571	233,195,628	49,170,057
1914—			
Jan.	154,742,923	204,066,603	49,323,680
Feb.	148,044,776	173,920,145	25,875,369
Mar.	182,555,304	187,499,234	4,943,930
April	173,762,114	162,552,570	†11,209,544
May	164,281,515	161,732,619	†2,548,896
June	157,529,450	157,072,044	†457,406
July	150,677,291	154,138,947	†5,538,344
Aug.	129,767,890	110,367,494	†19,400,396
Sept	139,710,611	156,052,333	16,341,722
Oct.	138,080,520	194,711,170	56,630,650
Nov.	126,467,062	205,878,333	79,411,271
Dec.	114,656,545	245,632,558	130,976,013
1915—			
Jan.	122,265,267	267,801,370	145,536,103
Feb.	125,123,391	*298,727,757	*173,604,366
Mar.	158,022,016	296,501,852	138,479,836
Apr.	160,576,106	294,746,117	134,170,011
May	142,284,851	273,769,093	131,484,242
June	157,695,140	268,547,416	110,852,276
July	143,099,620	267,978,990	124,879,370

* High record.

† Balance unfavorable.

STEEL MAKING PIG IRON AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. ...	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. ...	14.225	13.60	13.059	12.50
Mar. ...	14.1667	13.60	13.041	12.50
April ...	14.00	13.60	13.00	12.50
May	14.00	13.659	13.00	12.65
June	14.00	13.75	13.00	12.724
July ...	14.00	13.991	13.00	12.959
Aug. ...	14.00	15.064	13.00	14.364
Sept. ...	14.00	.....	13.00	.....
Oct. ...	13.9375	.....	12.85	.....
Nov. ...	13.6375	.....	12.477	.....
Dec. ...	13.75	.....	12.50	.....
Year ..	13.9793	.....	12.854	.....

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February.	1.4831	1.1590	1.024
March-April	1.5430	1.176	1.087
May-June	1.5272	1.1257	*1.10
July-August	1.5029	1.0928	
September-October	1.3931	1.0847	
November-December	1.2030	1.037	
Year's average	1.4421	1.1125	

* September basis.

PIG IRON PRODUCTION.

Rates per annum, including chemical pig.

January, 1913	32,275,000
February	34,050,000
March	32,900,000
April	33,850,000
May	33,500,000
June	32,300,000
July	30,500,000
August	30,100,000
September	30,800,000
October	30,350,000
November	27,500,000
December	23,700,000
January, 1914	22,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June ..	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000
March	24,600,000
April	26,060,000
May	26,800,000
June	24,250,000
July	20,000,000
August	21,800,000
Oct. September 1st	20,000,000

Actual production:

1900	13,789,242
1910	27,303,567
1913	30,966,152
1914	27,022,244

TIN.

THE TIN SITUATION.

The decline in the tin market, which from 42½c the middle of June continued with but slight reactions throughout the balance of June and all July and August, found the New York spot market at 35c on August 1st. Although the statistical position showed no explanation for the previous three months' decline, the American deliveries being very large and giving every indication of so continuing, still after the rise on these statistics, the market in few days became easy again, and after a month of dulness, with occasional small reactions, closed for the month at 33½c.

The American trade and especially consumers have been surprised that the excellent American demand (consumption) has not improved values. How good this demand has been is seen, as follows:

	Tons.
1913 - May	5,600
June	5,200
July	5,300
Aug.	4,500
.....	19,300
as against	
1914 - May	3,800
June	3,650
July	3,900
Aug.	2,900
.....	14,250

An increase of 5,050 tons during the past four months of this year as compared with a year ago.

The explanation is that tin from being the most speculative of all metals, has drifted into one in which speculation has been entirely eliminated in America by reason of the British Regulations, whereby an embargo has been placed on the metal and shipments to America only permitted when consigned to the British Consul, and only released by him on signed guarantees that it will be used by the recipient for their American industrial purposes, and not to be exported. The object of these British regulations was to kill speculation and avoid the accumulation of the metal in any country but their own, and it has been perfectly successful.

As regards speculation abroad that has also been eliminated, not by regulation, but

by the logic of events. Conditions caused by the war have cut off the Continental speculation which was in former years the life of the London market, and has also deprived that market to a great extent of the American orders, which for the most part is now placed in the East Indies. In addition the English trader or speculator has been in no mood or position to enter into speculative engagements, the reasons for which psychologically and financially require no elaboration.

The effect of the war, and the British regulations have prevented importers, dealers or speculators carrying stocks here, has caused the rank and file of our buyers to

TIN PRICES IN AUGUST.

New York.		— London —	
Day	Cents.	Prompts.	Futures.
		£ s d	£ s d
1 .....	.....	.....	.....
2	35.00	155 0 0	155 15 0
3	35.50	157 0 0	157 15 0
4	35.37½	156 5 0	157 15 0
5	34.87½	154 5 0	155 15 0
6	34.62½	151 7 6	153 5 0
7 .....	.....	.....	.....
8 .....	.....	.....	.....
9	34.25	150 0 0	152 5 0
10	34.50	151 0 0	153 0 0
11	34.87½	152 0 0	154 5 0
12	34.75	150 5 0	152 10 0
13	34.50	149 10 0	151 15 0
14 .....	.....	.....	.....
15 .....	.....	.....	.....
16	34.62½	151 0 0	153 0 0
17	34.37½	150 0 0	152 0 0
18	34.00	148 15 0	150 5 0
19	33.87½	148 10 0	149 15 0
20	33.62½	148 5 0	149 10 0
21 .....	.....	.....	.....
22 .....	.....	.....	.....
23	33.62½	149 2 6	150 7 6
24	33.15	150 5 0	151 10 0
25	34.25	153 5 0	154 10 0
26	34.15	155 0 0	156 5 0
27	34.25	153 0 0	154 0 0
28 .....	.....	.....	.....
29 .....	.....	.....	.....
30	33.62½	150 10 0	151 15 0
31	33.50	150 15 0	152 0 0
High ...	35.50	157 0 0	157 15 0
Low	33.50	148 5 0	149 10 0
Average	34.86	151 11 0	152 7 6

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.

	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,785
May	15,938	14,345	13,710	17,862	14,646
June	16,605	12,920	11,101	16,027	15,927
July	16,707	13,346	12,063	14,167	16,084
Aug.	16,619	11,285	11,261	14,452	15,127
Sept.	16,672	13,245	12,943	14,613	.....
Oct.	14,161	10,735	11,857	10,894	.....
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	5,270
May	4,967	4,310	5,760	6,160	6,900	6,759
June	4,120	5,050	4,290	4,820	5,870	6,665
July	5,040	4,660	4,580	4,770	4,975	5,606
Aug.	5,700	4,680	5,210	6,030	3,315	4,712
Sept.	4,220	5,150	5,430	5,160	4,973	.....
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	3,200
May	3,600	3,400	4,250	3,350	3,800	5,600
June	5,000	2,900	2,850	3,800	3,650	3,900
July	3,800	4,300	5,150	3,900	3,900	5,300
Aug.	3,700	3,800	4,300	3,600	2,900	4,500
Sept.	3,300	4,200	3,600	3,100	3,600	.....
Oct.	3,300	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Aug.	July.	Aug.
Exports—Shipments	1915.	1915.	1914.
To Gr. Britain ..	1,922	2,426	2,571
Continent ..	845	785	18
U. S.	1,945	2,505	7
Total from Straits	4,712	5,606	2,606
Australian shipments			
To Gr. Britain ..	139	171	77
U. S.	nil	167	77
Total Australian	139	171	77
Consumption			
London deliveries	1,767	1,915	1,758
Holland deliveries	140	148	149
U. S.	4,500	5,300	2,700
Total	6,407	7,363	4,607
Stocks at close of month.			
In London—			
Straits, Australian	2,474	1,573	1,877
Other kinds ..	1,319	1,409	1,788
In Holland	26	41	127
In U. S. excl. Pacific	2,527	991	1,077
Total	6,346	4,014	3,772
Straits afloat, close of month			
To London	2,585	4,025	2,480
Banca and Billiton			
To London	26	345	12
Total London ..	2,611	4,370	2,492
To United States ..			
Straits	6,170	7,500	.....
Banca		400	.....
Total U. S.	6,170	7,900	2,725
Grand total	8,781	12,270	6,195
	Aug. 31.	July 31.	Aug. 31.
Total visible supply	1915.	1915.	1914.
	15,127	16,984	14,471

STRAITS TIN PRICES IN NEW YORK

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.90
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	43.93
Apr.	42.20	44.02	49.12	36.10	47.47
May	43.10	46.12	49.14	33.30	48.78
June	46.16	47.77	44.93	30.67	43.47
July	42.66	44.75	40.29	31.75	47.00
Aug.	44.45	45.87	41.72	30.70	44.00
Sept.	40.88	43.18	42.47	32.79	.....
Oct.	40.21	40.11	40.50	30.00	.....
Nov.	41.00	40.00	39.81	28.50	.....
Dec.	41.00	40.00	39.81	31.00	.....
Av.	42.68	43.46	41.72	37.70	.....

TIN

follow a policy of keeping themselves bought well ahead for futures, and this enables their purchases to be negotiated and placed in East Indies through representative firms here. This fact has had a great deal to do with the limited trading in London of late, and the absence of speculation there. The ability to exploit the American consumer by London speculative operations has been severely curtailed. It has also made great changes in the trading between dealers in New York, and has considerably limited the daily sales of tin, which are now little more than those made to consumers.

These conditions promise to continue while the war lasts, and to make the tin market a proposition between the foreign producer and the home consumer. Unless something comes up therefore in the way of threatened ocean transportation, the market is certain to be one free from such sensational fluctuations and manipulation as we have been accustomed to in the past. Prices are likely to rule in close proportion to supply and demand and the prospects of production and consumption.

Present level of prices are low compared with recent years, as shown as follows:

Price, August 31st, 1915.....	33½c
Average price for 1914.....	35.70
" " " 1913.....	44.32
" " " 1912.....	46.43

Production shows no increase and is unlikely to do so, deprived as it is of the stimulus of high prices. Consumption as shown could not be better than it is in America and is likely to so continue, which more than offsets the dullness abroad of which we hear so much, but which by the way is hardly shown in the statistics, as for the past eight months compared with the same period last year.

English deliveries show an increase of 1475 tons.

London and Holland deliveries show an increase of 1075 tons.

It must be remembered that tin does not enter into war munitions to any extent, except for canning food, so the showing for the tin market must be excellent.

Among the features of the month has been price in London of Standard (the speculative counter) and Straits tin virtually coming together, and the gradual disappearance of a premium for spot tin in N. Y. over the cost of import from the Straits.

Consumers who bought futures so heavily in May, June and July on the prospects of requiring large quantities, which promise has been fulfilled, have been shy buyers during August, not because future prospects of their requirement are changed, but through surprise at the course of the market. Any abandonment of such a policy of keeping well bought ahead we consider dangerous, for if they don't provide for their requirements in advance, no one will or can do it for them now. Unsold tin is not likely to be ordered to America. Also prices are at a very safe basis for the pursuance of such a policy.

COMPOSITE METAL PRICES.

Computation for September 1, 1915:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	15.12	37.812
4	Lead (St. Louis)	4.80	19.200
3	Copper (Electro)	17.50	52.500
1	Tin (New York)	33.50	33.500
10 pounds			126.262
One pound			12.6262

Monthly averages

	1912.	1913.	1914.	1915.
January	9.778	10.987	9.105	8.836
February	9.671	10.260	9.294	9.878
March	9.886	10.024	9.026	10.977
April	10.277	10.198	8.344	11.977
May	10.468	10.163	8.668	13.063
June	11.014	9.648	8.441	15.771
July	11.043	9.398	8.445	14.939
August	11.092	10.025	9.111	12.271
September ..	11.575	10.350	8.067	...
October	11.596	10.029	7.500	...
November ..	11.372	9.590	7.873	...
December ...	11.219	9.053	8.400	...
Year	10.750	9.977	8.555	...

COPPER.

COPPER SITUATION.

From the highest point touched in the first year of the war of 20½c in June for electrolytic, the market had declined to 18½c. by August 1st. This weakening market accompanied by hardly any new buying was continued all through August, until August 24th when prices had dropped another 2½c. to 16c. At this time a sudden change seemed to come over the sentiment of the entire metal trade here and abroad, and advances took place on the following day in every metal. Copper advanced 1½c. per lb. to 17½c. In copper however, unlike the other metals, it was accompanied with very little buying, and on the following day producers marked their price up to 18c., a rise of 2c. in two days. As this had been caused by no buying of importance, consumers considered it a rank exhibition of manipulation, engineered by the producers to take advantage of improved sentiment in England caused by better news for the allies from the field of war, to stampede the American consumer, and incidentally frighten England into buying large quantities at the higher price. Up to the present the movement has been unsuccessful, and while the month closes with producers holding for 18c., they have made few sales, and second hands have been trying to sell also by cutting the producers price ¾c. to ½c. per pound, but although the amounts they had to sell were very limited, the buying has been more limited still.

Unless consumers were frightened into buying, there was no reason for their doing so, as they had overbought in the movement that culminated in June, and since then requests from them to defer shipments had been in evidence.

There is a heavy increase in production going on at present, extremely profitable prices to the producer, and it is doubtful whether home consumption outside of war orders is over 50% of normal. There is an abundance of copper for all probable requirements.

In absence of the regular producers statistics, which it will be remembered were suspended at the opening of the war, it is impossible to know exactly what the statistical position is, but from those that are available we know exports have shown

an heavy falling off in late and production a heavy increase. Exports in August were only one half that of the same month a year ago. We are certain producers' stocks are increasing and discussing the situation on August 26th in our daily paper, the **American Metal Market and Daily Iron and Steel Report**, we said:

"There is no change in the fundamental situation and conditions as regards production, consumption and surplus stocks are just as they were week ago, when the metal was going begging at 2c. less than the sellers are

COPPER PRICES IN AUGUST.

— New York — London

Day.	Lake. Cents.	Electro. Cents.	Casting. Cents.	Standard £ s d
1	.....	.....	.....	.....
2	18.37½	18.12½	17.00	71 5 0
3	18.37½	18.12½	17.00	72 10 0
4	18.37½	18.12½	17.06½	73 0 0
5	18.37½	18.18¾	17.06½	74 2 0
6	18.25	18.00	16.93¾	71 15 0
7	.....	.....	.....	.....
8	.....	.....	.....	.....
9	17.87½	17.62½	16.75	69 7 6
10	17.75	17.50	16.62½	69 0 0
11	17.62½	17.37½	16.62½	68 2 0
12	17.50	17.12½	16.50	67 5 0
13	17.37½	17.00	16.37½	67 0 0
14	.....	.....	.....	.....
15	.....	.....	.....	.....
16	17.00	16.62½	16.00	67 17 0
17	16.87½	16.56½	16.00	67 2 0
18	16.75	16.50	15.87½	66 15 0
19	16.50	16.25	15.75	65 15 0
20	16.37½	16.12½	15.62½	65 0 0
21	.....	.....	.....	.....
22	.....	.....	.....	.....
23	16.25	15.87½	15.50	64 10 0
24	16.25	16.00	15.62½	67 7 0
25	17.50	17.25	16.50	68 7 0
26	17.75	17.62½	16.75	70 17 0
27	17.87½	17.87½	17.00	71 15 0
28	.....	.....	.....	.....
29	.....	.....	.....	.....
30	17.68¾	17.50	16.75	68 18 0
31	17.68¾	17.50	16.75	68 18 0
High	18.70	18.25	17.25	74 4 0
Low	16.12	15.75	15.37	66 10 0
Average	17.472	17.222	16.452	68 11 0

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.55	14.37½	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.27	15.73	14.44	18.81
June	12.63	17.43	15.08	14.15	19.92
July	12.72	17.37	14.77	13.73	19.42
Aug.	12.59	17.61	15.79	12.68	17.47
Sept.	12.57	17.69	16.72	12.44	.....
Oct.	12.47½	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av.	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.51
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	18.60
June	12.55	17.29	14.85	13.81	19.51
July	12.62½	17.35	14.57	13.49	19.08
Aug.	12.57½	17.60	15.68	12.41½	17.22
Sept.	12.39	17.67	16.55	12.09	.....
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.57	17.49	15.47	11.74	.....
Dec.	12.71	17.50½	14.47	12.93	.....
Av.	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of **Casting Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.53	14.18	16.48
May	12.08	16.01	15.45½	14.00	17.41
June	12.40	17.08	14.72	13.65	18.74
July	12.49½	17.09	14.40½	13.34½	17.76
Aug.	12.42	17.35	15.50	12.27	16.46
Sept.	12.23	17.51	16.37½	12.00	.....
Oct.	12.27	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	12.56½	17.34	14.22	12.83½	.....
Av.	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since September 1, 1914 are given in the following table together with the price of Lake copper on the same dates:

1914—	Sheet Copper.	Lake Copper.
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19 ...	17.00	12.25
November 23 ...	17.50	12.62½
December 1,	18.00	12.90
December 15 ...	18.50	13.50

1915—		
January 16	18.75	13.75
January 21	19.00	14.12½
January 25	19.50	14.37½
January 29	19.75	14.62½
March 22	20.25	15.12½
March 25	20.50	15.43¼
March 27	20.75	15.75
April 8	21.00	16.50
April 13	21.25	16.62½
April 14	21.50	16.75
April 17	22.00	17.00
April 19	22.50	17.62½
April 22	23.00	18.00
April 28	24.00	18.93¼
June 8	24.50	19.62½
June 9	25.00	19.87½
July 27	24.50	18.87½
July 31	24.00	18.75
August 18	23.00	18.75

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914.	1915.
January ..	31,229	25,026	36,013	26,193
February ..	31,894	26,792	34,634	15,583
March ...	27,074	42,428	46,504	30,148
April	22,591	32,274	35,070	18,738
May	32,984	38,601	32,977	28,889
June	26,669	28,015	35,182	16,976
July	26,761	29,596	34,145	17,308
August ..	29,526	35,072	16,500	16,289
September	25,572	34,356	19,402	.....
October ..	25,020	29,239	23,514	.....
November	19,171	29,758	24,900	.....
December	29,474	30,653	22,168	.....
Total ..	327,965	352,810	360,220	.....

Includes only exports from Atlantic ports.

COPPER — LEAD

asking to-day. As far as we can make out the move was started in conjunction with one of the leading metal houses in England, as on Monday the London firm that is one of the main suppliers for the government started bidding for large tonnages in this market and immediately the sellers here stopped selling. It is even intimated that the hint was given that the English Government was coming into the market and with that knowledge the price could be raised to at least 18c. before accepting American buyers' orders.

"If consumers come into the market in large volume and pay this price of 18c. then the manipulation will do what it was intended to do, but if they refrain from buying as they have done for upwards of two months then the move is certain to fail. It is clearly a case of the sellers matching their wits against those of the buyers and the next week will tell what the outcome is to be."

The demand for copper is certain to be very large during the war, but we have doubts whether our European demand plus war orders here are more than making up for the enormous amount we used to send to Germany and which are now entirely cut off, and were it not that we know there has been a great improvement in home consumption and increases in that direction certain to come with the great change in the iron and steel trade, representing a return to normal home requirements, and the curtailment in production in the first few months following the opening of the war,

WATERBURY COPPER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87½	14.50	17.00	14.75	14.12½
Feb.	12.75	14.50	15.50	15.12½	15.25
Mar.	12.50	15.00	15.12½	15.00	15.75
Apr.	12.50	16.00	15.75	14.87½	18.50
May	12.37½	16.37½	15.87½	14.75	22.50
June	12.62½	17.50	15.37½	14.37½	22.50
July	12.75	17.75	14.75	14.12½	22.25
Aug.	12.75	17.75	15.62½	13.00	19.50
Sept.	12.62½	17.87½	16.87½	12.87½	.....
Oct.	12.50	17.75	16.87½	12.25	.....
Nov.	12.87½	17.75	16.25	12.25	.....
Dec.	12.87½	17.75	15.00	13.50	.....
Av.	12.75	16.71	15.80	13.91	.....

we would consider the copper market in an unsound condition at present prices. As it is the metal is selling for all it is worth and the future prospects point to somewhat lower rather than higher prices.

LEAD SITUATION.

August opened with the Trust price at 5.50 N. Y. but no demand, and outside lots offering at \$5 per ton less, and indications that as the Trust and other producing interests were not prepared to stock lead, or cut down production at such a good price as 5½c, the only solution was to reduce the price and restore buying; and on August 2nd a cut of \$5 per ton to 5c, was made. This, however, did not have the slightest effect in creating demand or stability in the market, and second hands continued to sell at under the Trust price. A very drastic reduction was made on August 9th of \$10 per ton to 4.75 N. Y. and again another \$5 per ton on August 10th to 4.50 New York. Thus dismally ended the upward movement that began in lead in May from 4.30, and which during the absurd excitement of June reached the unprecedented price of 7c for the Trust and 7.65 in the outside market. The trade will long remember the lead market of the summer of 1915, and the more it is examined the greater the wonder for the panic on the part of buyers for which there was no reason other than the talk of war orders for the metal. As there was nothing legitimate to justify the excited and extraordinary advance, the decline has proved to be almost as sudden as the advance, leaving behind it many scars that it will take some time to heal.

During August for a while market was unsettled, but as the foreign market began to improve and the heavy decline was realized, there was for the first time in nearly two months a steady market, demand improving with it, and on August 25th, the Trust for the first time since June 17th was able to advance their price \$2 per ton to 4.60 and buying from excellent further advances quickly followed.

August 26th to 4.50

August 27th to 4.60

at which the month closed.

LEAD, — ANTIMONY

LEAD PRICES IN AUGUST.

Day.	New York.* Cts.	St. Louis. Cts.	London. £ s d
1	.	.	..
2	5.15	5.15	23 10 0
3	5.00	5.00	23 12 6
4	5.00	5.00	23 12 6
5	5.00	4.95	23 11 3
6	5.00	4.95	23 3 9
7	....	....	....
8	....	....	....
9	4.50	4.65	22 15 0
10	4.50	4.37½	21 17 6
11	4.50	4.37	20 13 9
12	4.47½	4.37½	20 6 3
13	4.47½	4.37½	20 15 0
14	....	....	....
15	....	....	....
16	4.47½	4.35	20 16 3
17	4.45	4.32½	20 17 6
18	4.42½	4.32½	20 18 9
19	4.42½	4.32½	21 3 9
20	4.42½	4.32½	21 6 3
21	....	....	....
22	....	....	....
23	4.45	4.32½	21 6 3
24	4.47½	4.37½	21 13 9
25	4.60	4.47½	22 1 3
26	4.70	4.60	22 7 6
27	4.90	4.80	22 16 3
28	4.90	4.80	22 15 0
29	4.90	4.80	22 7 6
High	5.20	5.20	23 12 6
Low	4.40	4.30	20 6 3
Average	4.678	4.592	22 0 4

* Outside market.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	4.35	4.11	3.74	4.20	3.99½	3.57
Feb.	4.35	4.06	3.82	4.20	3.95	3.72
Mar.	4.35	3.97	4.03	4.21	3.83	3.98
Apr.	4.40	3.82	4.19	4.25½	3.70	4.11
May	4.36	3.90	4.23½	4.22	3.81	4.16
June	4.35	3.90	5.86	4.21	3.80	5.76
July	4.37	3.90	5.74	4.25	3.75	5.52
Aug.	4.63	3.90	4.75	4.56	3.73	4.59
Sep.	4.75	3.86	....	4.62	3.67	....
Oct.	4.45	3.54	....	4.31	3.39	....
Nov.	4.34	3.68	....	4.18	3.58	....
Dec.	4.06	3.80	....	3.94	3.67	....
Average	4.40	3.87	....	4.26	3.74	....

* Trust price.

ANTIMONY SITUATION.

August opened with prices being cut for shipment during the fourth quarter from China and Japan and sales at 30c, in bond, the spot jobbing price being around 34½c. to 35c duty paid, and a very uneasy feeling as to the future of the market was observable in the trade. Some good war orders were placed, however, which kept market steady. There were also some large inquiries from Russia, and these disappearing again, the attention of the trade was attracted to the fact that compared with other metals antimony was at a very high price, 450% higher than before the war, and the efforts to sell futures resulted that by August 23rd, the market had declined with sellers at 26c for futures in bond and 28c to 29c duty paid for spots.

This level again attracted ammunition buyers, and a good business was done in some cases as low as 25c in bond for futures, and up to 27c was paid, but the spot market remained 28c. to 29c. duty paid; in other words at less than the future price. The buying disappearing again, the month closed with futures offered at 26½c with 25½c bid, and spot dull at 28½c duty paid.

During the month there has been a better small jobbing demand, showing the stocks in small consumers hands are exhausted; but arrivals from the East have been ample for all requirements. While stocks are small, they are not being depended on by the large consumers who are keeping themselves booked ahead.

The market remains in a position to become weak and very pessimistic on signs of any eagerness to make sales, and of course the high price quite explains this feeling, at the same time there seems to be a demand for all the Orient can produce and ammunition prospects are favorable for a continued large demand.

The embargo on shipment of the metal from England continues, but a limited amount of English antimony is reaching this country by special permit to consumers and their guarantee that it goes into ammunition, and that said ammunition is shipped to the allies. The price at which this limited amount is available is believed to be high and in connection with specifications calling for English brands.

ANTIMONY — ALUMINUM

ALUMINUM SITUATION.

There has been no general or open market for aluminum during August. Importations have entirely ceased and the market with the exception of occasional dribblets has been entirely in the hands of the only American producer, the Aluminum Company of America. Their operation details are kept entirely to themselves, and their price a matter of private treaty. It is quite evident however, that their operations have been taxed to supply the demand which has been very large by reason of increased automobile and aluminum ware demand, both of which have grown with the war. If reports are to be believed they are behind on their deliveries and heavily sold up into the future. We are unable to report the prices at which the business has been and is being done by this interest, but there is every reason to believe it is at higher prices than the "dribblet" outside market. This market has been around 35.00c to 40.00c N. Y. during August and more or less nominal. With the beginning of September, the scarcity has become more acute and for such small lots as are available, sellers are asking 43c to 45c New York for prompt, and not much lower prices for delivery in 30 to 60 days, but no large amount available from these interests at any price.

CHINESE and JAPANESE ANTIMONY.

Average monthly price of **Chinese** and **Japanese** (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.55	6.78	7.91	5.94½	20.93½
Apr.	8.34	6.87	7.82	5.82	22.97
May	8.06	6.98	7.75	5.78	24.71
June	7.38	7.07	7.62	5.62½	26.33
July	7.32	7.37	7.55	5.44	25.98
Aug.	7.22	7.58	7.48	5.05	22.119
Sep.	7.13	8.00	7.31	9.79½	.....
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Av.	7.48	7.63	7.43	8.50½	.....

ALUMINUM, SILVER and ANTIMONY PRICES IN AUGUST.

Aluminum.		— Silver —		Antimony*
Day.	N. Y. Cents.	N. Y. Cents.	London Pence.	N. Y. Cents.
1	32.50	47 ½	22 ½	34.75
2	32.50	47 ½	22 ½	34.75
3	32.50	47 ½	22 ½	34.75
4	32.50	47 ½	22 ½	34.75
5	33.00	47 ½	22 ½	34.75
6	33.00	47 ½	22 ½	34.75
7	33.00	47 ½	22 ½	34.75
8	33.00	47 ½	22 ½	34.75
9	33.00	47 ½	22 ½	34.75
10	33.00	47 ½	22 ½	34.75
11	33.00	47 ½	22 ½	34.75
12	33.00	47 ½	22 ½	34.75
13	34.00	48 ½	23	35.25
14	34.00	47 ½	22 ½	35.25
15	34.00	47 ½	22 ½	35.25
16	34.00	46 ¾	22 ½	35.25
17	34.00	46 ¾	22 ½	35.25
18	34.00	46 ¾	22 ½	35.25
19	34.00	47 ½	22 ½	35.25
20	34.50	47 ½	22 ½	35.25
21	34.50	47 ½	22 ½	35.25
22	34.50	47 ½	22 ½	35.25
23	35.00	47 ½	22 ½	35.25
24	35.00	46 ¾	22 ½	35.25
25	35.00	46 ¾	22 ½	35.25
26	35.50	46 ¾	22 ½	35.25
27	36.00	47 ½	22 ½	35.25
28	36.00	46 ¾	22 ½	35.25
29	36.00	47 ½	22 ½	35.25
30	36.00	46 ¾	22 ½	35.25
31	36.00	46 ¾	22 ½	35.25
High	37.00	48 ½	23	35.00
Low	32.00	46 ¾	22 ½	28.00
Av.	34.00	47 178	22.507	32.574

* Chinese and Japanese.

ALUMINUM AND SILVER PRICES.

New York					
—Aluminum—			—Silver—		
1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.93	57.56 48.89½
Feb.	26.20	18.80½	19.20	61.64	57.50½ 48.48
Mar.	26.72	18.30	18.95	57.87	58.07 50.24
Apr.	26.91	18.08	18.83	59.49	58.52 50.25
May	25.95	17.93	21.85	60.36	58.18 49.91
June	24.79	17.82	20.66	58.99	56.47 49.07
July	23.34	17.59	32.50	58.72	54.68 47.32
Aug.	22.73	20.48	34.00	59.24	54.34 47.38
Sep.	22.00	19.28½	.....	60.64	53.29
Oct.	20.32	18.25	.....	60.79	50.65
Nov.	19.49	18.83	.....	58.99	49.10
Dec.	18.85	19.02	.....	57.76	49.38
Av.	23.61	18.79½	.....	59.70½	54.81

SPELTER.

SPELTER SITUATION.

After the exciting fluctuations of the two previous months, August opened with prompt shipments scarce at 17½c. f.o.b. East St. Louis, and last quarter of the year offering freely at around 15½c. and the market dull. Weakness immediately developed, and buyers continuing to be very much afraid of prices and refusing to buy, a demoralized market developed around August 10th. The London market was also declining rapidly and the market here flooded with depressing reports of the increasing production a semipanic took place. By August 19th prices had dropped to 11c East St. Louis for prompt and 9½c. for last quarter of the year,—or a decline of nearly 7c per lb. in less than three weeks. At this time the preliminary statistics of the Government were published, showing for the first six months of the year an increase of production of only about 20%—an increase in domestic consumption of 8%, but an increase in exports whereby the stock in producers' hands January 1st of 19,984 tons had been reduced July 1st to 5,884 tons. This and the heavy decline seemed to give buyers food for thought, and they came in freely for future deliveries, and on the covering of shorts put out by speculators at around 16c the market again began to improve.

The movement to buy futures about August 25th was a regular scramble, heavy advances taking place every day, the month closing at 16½c. for prompt and 14¾c. for last quarter of year, or almost within 1c. per pound of the opening after a decline of about 7c per pound.

It is no wonder, after seeing spelter sell at 26c. in June, dropping to considerably less than half the price (11c. in August) and recovering to 16½c., the consumer and trader should be in an attitude of nervousness and unsettlement, and ready to run in either direction as the market shows weakness or strength; and we regret to say that there is every reason for expecting that the future has for the trade a continuation of excited movements up and down. When ever the market looks weak, everyone remembers the enormous increased production that is coming in the future from new smelting capacity (which we covered fully

on page 390 giving Government statistics—just issued as we go to press) and each time the market is strong it is remembered what has happened in excited advances of late, and that no matter what may happen in the future, production and consumption at present is closely aligned, also the unknown factor of England's requirements in increased exports. We again say that for sometime to come, nothing but sensational markets can be expected which will strain the judgment of the most conservative and careful buyer. Eventually prices must closely approximate those ruling before the war, around 5½c, but we believe it is a long way off. In the meantime, the consumer who runs his supplies too close, may have to pay at times dearly for his conservatism.

SPELTER PRICES IN AUGUST.

Day.	New York.	St. Louis.	London.	
	Cts.	Cts.	£	s d
1	.....	.....	.....	.....
2	18.00	17.87½	92	10 0
3	17.37½	17.12½	91	10 0
4	17.00	16.75	91	10 0
5	16.75	16.50	85	0 0
6	16.62½	16.12½	75	0 0
7	.....	.....	.....	.....
8	.....	.....	.....	.....
9	14.50	14.25	70	0 0
10	14.50	14.25	67	0 0
11	14.37½	14.12½	65	0 0
12	13.62½	13.37½	65	0 0
13	13.00	12.75	63	0 0
14	.....	.....	.....	.....
15	.....	.....	.....	.....
16	12.37½	12.12½	63	0 0
17	12.00	11.75	59	10 0
18	11.50	11.25	58	0 0
19	11.25	11.00	57	0 0
20	11.37½	11.12½	55	0 0
21	.....	.....	.....	.....
22	.....	.....	.....	.....
23	12.25	12.00	58	10 0
24	12.87½	12.75	61	0 0
25	14.25	14.00	62	10 0
26	14.62½	14.37½	66	0 0
27	16.25	16.00	68	0 0
28	16.75	16.37½	70	0 0
31	16.62½	16.37½	72	0 0
High	18.12½	18.00	92	10 0
Low	11.00	10.75	55	0 0
Average	14.449	14.19	68	18 2

SPELTER.

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc since the beginning of 1915 together with the price of spelter ruling on the same day.

1915—	Sheet Zinc.	Spelter St. Louis.
January 19	9.25	6.10
January 21	9.50	6.75
January 26	10.00	7.31½
February 2	10.50	7.87½
February 8	11.00	7.93¾
February 8	11.50	8.00
February 12	12.00	8.25
February 19	12.50	9.25
March 1	13.00	10.25
March 5	13.50	11.00
April 22	13.75	12.12½
April 23	14.50	12.37½
April 27	15.50	13.75
April 28	16.00	13.75
April 30	17.50	13.75
May 18	18.50	15.12½
May 20	19.50	16.00
May 25	20.00	18.75
May 26	22.00	19.25
May 29	24.50	20.75
June 1	26.00	22.50
June 3	30.00	26.00
June 9	33.00	25.75
June 14	30.00	22.75
June 23	27.00	18.25
July 27	24.00	18.37½
August 6	21.00	16.12
August 16	17.00	12.12½
August 23	15.00	12.00
August 24	16.00	12.75

Steps for the manufacture of sheet brass will be taken in the near future at the plant of the Baltimore Copper Smelting & Rolling Company, Fourth Avenue and Fifth Street, Canton, Md., according to William H. Pierce, the manager. It will mean the establishment of a brass plant with capacity of between 60,000 and 70,000 pounds per month.

The St. Louis Lead & Zinc Company, St. Louis, Mo., has been incorporated with a capital stock of \$10,000 by A. B. Hamilton, A. W. Sanders, T. F. Newbery, and others.

SPELTER (Monthly Averages.)

	—New York—			—St. Louis—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	7.23	5.33	6.52	7.04	5.14	6.34
Feb.	6.49	5.46	8.86	6.25	5.27	8.61
Mar.	6.29	5.35	10.12½	6.08	5.15	9.80
Apr.	5.79	5.22	11.51	5.59	5.03	11.22
May	5.51	5.16	15.82½	5.31	4.96	15.75
June	5.23½	5.12	22.63	5.05	4.96	22.78
July	5.41	5.03	20.80	5.23	4.84	20.75
Aug.	5.80	5.63	14.45	5.64	5.45	14.75
Sep.	5.83	5.52	....	5.65	5.33	....
Oct.	5.47	4.99½	....	5.27	4.91	....
Nov.	5.34	5.15	....	5.15	4.97	....
Dec.	5.22	5.67	....	5.03	5.49	....
Av.	5.80	5.30	....	5.61	5.11½	....

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	5.77	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.70	11.85
Mar.	6.01	7.17	6.56	5.59	12.15
Apr.	5.85	7.07	6.03	5.50	13.35
May	5.76	7.13	5.77	5.28	20.55
June	5.89	7.23	5.50	5.45	27.45
July	6.11	7.46	5.61	5.26	24.90
Aug.	6.29	7.34	5.99	5.66	19.45
Sep.	6.29	7.72	6.13	5.91	....
Oct.	6.49	7.83	5.74	5.23	....
Nov.	6.90	7.74	5.60	5.33	....
Dec.	6.81	7.65	5.44	5.90	....
Av.	6.16	7.33	6.06½	5.53½	....

SPELTER PRICES IN ST. LOUIS.

Extreme fluctuations of Prime Western Spelter, East St. Louis delivery, by months and years:

	— 1914 —			— 1915 —		
	High.	Low.	Av'ge.	High.	Low.	Av'ge.
Jan.	5.25	5.10	5.14	7.62½	5.55	6.33
Feb.	5.35	5.20	5.27	10.00	7.65	8.62
Mar.	5.22½	5.12½	5.15	11.00	8.87½	9.80
Apr.	5.12½	4.85	5.03	14.00	9.25	14.25
May	5.51	5.16	5.32½	5.31	4.96	5.15
June	4.97½	4.82	4.93	27.00	17.50	22.24
July	4.95	4.80	4.84	22.75	17.75	20.25
Aug.	6.00	4.70	5.45	18.00	10.75	14.25
Sep.	5.85	4.95	5.35	....	....	....
Oct.	5.00	4.60	4.81	....	....	....
Nov.	5.20	4.80	4.97	....	....	....
Dec.	5.65	5.20	5.49	....	....	....
Av.	5.60	4.60	5.11	....	....	....

GOVERNMENT SVELTER STATISTICS.

Production, Consumption, Stocks.

Figures compiled by C. E. Siebenthal, of the United States Geological Survey, from reports by all zinc smelters operating during the first six months of 1915 show that the production of spelter from domestic ore in that period was 207,634 short tons and from foreign ore 8,898 short tons, a total production of 216,532 tons, compared with 177,991 tons for the last half of 1914 and 175,058 tons for the first half. The spelter made in Illinois increased about 9,000 tons, that made in Kansas increased about 15,000 tons, a larger increase than was shown by any other State, and that made in Oklahoma increased about 5,000 tons, compared with the spelter made in those States during the last six months of 1914. The stock of spelter held at smelters on June 30, 1915, was 5,884 tons, against 20,095 tons at the beginning of the year and 64,039 tons at the middle of 1914.

From the foregoing figures and the records of the Bureau of Foreign and Domestic Commerce it is calculated that the apparent consumption for the period was 160,906 tons, which compares favorably with 149,813 tons for the last half of 1914 and 149,312 tons for the first half. This consumption was not altogether domestic, however, for it must include the zinc content of the exports of brass and brass articles, which, as will be seen from the table of exports by classes, were largely increased during the first half of the year.

In addition to the spelter produced from ore, 13,546 tons of spelter was made from skimmings, drosses, etc., by distilling. No statistics were obtained of the spelter produced by remelting skimmings, drosses, etc., but it was probably not less than 12,000 tons. The total output of spelter from both ore and skimmings was therefore about 242,000 tons, or at the rate of 484,000 tons per year.

Imports and Exports.

The imports of spelter were 489 short tons, compared with 374 tons during the last half of 1914 and 506 tons during the first half. The exports of spelter of domestic origin were 64,368 tons, against 63,983 tons in the last half of 1914 and 824 tons in the first half. The exports of spelter of foreign origin, including spelter extracted from bonded warehouses, as well

as articles manufactured from spelter of foreign origin and exported with benefit of drawback, were 5,958 tons, compared with 8,513 tons in the last half of 1914 and 2,048 tons in the first half.

The imports of zinc ore were 66,683 short tons, containing 23,997 tons of zinc, compared with 22,910 tons of ore, containing 9,183 tons of zinc, in the last half of 1914, and 9,052 tons of ore, containing 2,949 tons of zinc, in the first half. Of the imports of zinc in ore in 1915 about three-fourths came from Canada. The exports of domestic zinc ore were 678 tons, compared with 3,069 tons in the last half of 1914 and 8,042 tons in the first half.

Of the total imports of zinc ore, 27,335 short tons, containing 8,468 tons of zinc worth \$722,215, came from Mexico, 4,750 tons, containing 1,804 tons of zinc worth \$73,352, came from Canada, and 28,516 tons, containing 11,130 tons of zinc worth \$619,023, came from Australia.

Prices and Values.

The price of spelter at St. Louis started at 5.55 cents a pound and gradually rose to 11 cents early in March. By the end of March the price had receded to 9.25 cents, after which a steady rise carried it to 26.50 cents early in June, the maximum for the period. A decline set in, and June closed with spelter at 21.75 cents. The average for the first six months of 1914 was 12.4 cents.

The price of spelter at London at the beginning of the year was £28 2s. 6d. a long ton (6.12 cents a pound), but it rose to £44 10s. (9.68 cents a pound) by the early part of March. A decline set in which carried the price down to £42 5s. (9.18 cents a pound) early in April, after which it rose to £66 (14.35 cents a pound) in the first part of April but receded to £61 10s. (13.37 cents a pound) by the middle of the month. A sharp advance carried the price up to £110 (23.92 cents a pound) by the middle of June. After some fluctuation, the price at the close of the period was £100 (21.74 cents a pound). The average for the six months was £56 2s. 2d. a long ton (12.2 cents a pound).

The foregoing prices are for the ordinary commercial grades of spelter. High-grade spelter suitable for cartridge spinning has been in such great demand that it

Spelter Statistics, 1911-1915, by Six-Months Periods.

	Jan. 1 to June 30, 1911.	July 1 to Dec. 31, 1911.	Jan. 1 to June 30, 1912.	July 1 to Dec. 31, 1912.	Jan. 1 to June 30, 1913.	July 1 to Dec. 31, 1913.	Jan. 1 to June 30, 1914.	July 1 to Dec. 31, 1914.	Jan. 1 to June 30, 1915.
Supply:									
Stock at beginning	23,737	17,788	9,081	6,414	4,522	4,659	40,659	64,039	20,095
Production—									
From domestic ore	135,061	136,560	159,952	163,955	171,135	166,117	171,496	171,922	207,634
From foreign ore	5,135	9,970	6,544	8,355	9,078	8,115	3,562	6,069	8,898
Imports	146	463	3,053	8,062	5,533	5,607	506	374	489
Total available	163,574	164,581	178,630	186,786	190,268	188,886	216,223	242,404	237,116
Withdrawn:									
Foreign exports	7,903	6,452	7,331	174	8,724	4,672	2,048	8,513	5,958
Domestic exports	2,981	3,891	5,839	795	6,615	8,158	824	63,983	64,368
Stock at close	17,788	9,081	6,414	4,522	21,856	40,659	64,039	20,095	5,884
Total withdrawn	28,667	19,424	19,584	5,491	37,195	46,499	66,911	92,591	76,210
Apparent consumption . . .	134,902	145,157	159,046	181,295	153,073	132,387	149,311	149,813	160,906
Spelter made in—									
Illinois	41,255	41,875	44,224	44,173	53,524	53,130	62,062	65,884	74,982
Kansas	50,574	47,839	52,485	48,619	42,645	31,461	23,737	20,773	35,247
Oklahoma	19,997	26,318	36,010	40,915	43,253	39,961	45,143	45,924	51,172
All other States	28,370	30,298	33,777	38,603	40,791	41,911	43,816	45,410	55,131
Total	140,196	146,330	166,496	172,310	190,213	166,463	175,058	177,991	216,532
Zinc ore imported	37,885	38,097	27,049	16,891	19,994	11,411	9,052	22,910	66,683
Zinc content	15,028	17,112	12,228	5,339	9,204	4,293	2,949	9,183	23,997
Zinc ore exported	9,625	8,656	13,709	9,640	9,745	7,968	8,042	3,069	678

has commanded a large premium, selling at high as 44 cents a pound.

At the average price at St. Louis the value of the spelter produced from domestic ores during the six months was \$50,662,696, and that of the spelter produced from foreign ores \$2,171,112, a total of \$52,833,808. However, these figures must greatly underestimate the value of the spelter produced, because the production was much heavier during the later part of the period, when prices were highest, and because of the extra value of high-grade spelter, of which there was more than the usual output.

New Smelter Construction.

As was natural under the circumstances, there was much activity in smelter building during the first half of the year, with further increases under construction or planned for the immediate future.

In Pennsylvania the American Zinc & Chemical Co. completed the new plant at Langeloth as planned, with 3,648 retorts and immediately began construction to exactly double the capacity for both spelter and sulphuric acid. The New Jersey Zinc Co. added about 960 retorts at the Palmer-ton plant. The American Steel & Wire Co. began the construction of a large plant at Donora, about 25 miles south of Pittsburgh, on Monongahela River. The plant will contain 9,600 retorts, with a planned capacity of 40,000 tons a year of spelter and the equivalent quantity of acid. It is

expected that a portion of the plant will be ready for operation at the beginning of 1916. In West Virginia both the Grasselli Chemical Co. and the Clarksburg Zinc Co. made additions.

In Illinois the Granby Mining & Smelting Co. completed the plant at East St. Louis, with 1,620 retorts and an acid plant. An addition which will double the capacity is planned. The Hegeler Zinc Co. constructed 1,800 additional retorts at Danville, doubling the capacity of both the smelting plant and the acid plant. The Mathieson & Hegeler Zinc Co. added 912 retorts at La Salle, and the Robert Lanyon Zinc & Acid Co. will add 800 retorts at Hillsboro. The plant of the Sandoval Zinc Co. was destroyed by fire early in the year but has been rebuilt and is now being operated with about 900 retorts.

In Missouri the Edgar Zinc Co. is operating 2,000 retorts, against 1,100 at the close of 1914. The old smelter at Nevada was dismantled at the beginning of the year, but is being reconstructed and will start with 672 retorts.

In Kansas the J. B. Kirk Gas & Smelt-Co. rebuilt several blocks of the old Lanyon smelter at Lela and operated it until June 30, when it was purchased by the United States Smelting Co., which also purchased on June 15, the plant of the Altoona Zinc Smelting Co. A new smelter constructed on the site of the old plant of the La Harve Smelter Co. by the Nichol-

son Construction Co. was likewise purchased by the United States Smelting Co. Additional retorts are under construction at all three plants, and when completed will increase the smelting capacity by 6,000 retorts over that at the beginning of the year. At Caney the American Zinc, Lead & Smelting Co. is operating 948 additional retorts and has 1,524 under construction, which will be completed in September. At Dearing the same company has added 640 retorts. The Cherokee Zinc Co. reopened the old smelter at Bruce, with 896 retorts, which was purchased in July by the Cherokee Smelting Co. The Granby Mining & Smelting Co. added 1,200 retorts at Neodesha, and the Pittsburgh Zinc Co. is building 448 additional retorts. The Joplin Ore & Spelter Co. purchased the old Cockerill smelter at Pittsburgh, rebuilt the furnaces, and replaced the hand roasters by two mechanical roasters. The plant of the Chanute Zinc Co. was taken over by the Chanute Spelter Co.

In Oklahoma the Bartlesville Zinc Co. is adding 2,016 retorts at Collinsville. The National Zinc Co. added 710 retorts at Bartlesville, and the United States Zinc Co. added 2,400 retorts at Sand Springs and is building 1,600 more. The Kusa Spelter Co. is building a smelter at Kusa, a new town in a gas and coal belt about 5 miles east of Henryetta. Five blocks of 660 retorts each are under active construction, and the company expects to have 1,980 retorts in operation in September and 1,320 more in October. It is probable that on the completion of the plant work will immediately be begun on another unit of the same capacity.

In Colorado the United States Zinc Co. added 320 retorts to the plant near Pueblo and is building 320 additional retorts.

Total Smelter Capacity.

The total number of retorts was 113,914 at the close of 1914 and 130,642 at the close of June, 1915, an increase of 16,728 retorts, or 15 per cent. over the smelting capacity in 1913. The whole number of retorts in operation in June was about 129,000. Since June 30, 34,048 retorts have been completed or are under construction or in contemplation. If all these are constructed together with the 3,300 additional at the Kusa smelter, the zinc-smelting capacity of the country will be increased nearly 50 per cent. over 1914. These figures differ

somewhat from those given in the preliminary midyear report owing to the inclusion of later information. It seems likely, however, in view of the recent decline in spelter prices and the large increase in capacity already available that some of the contemplated additions will not be made.

In 1908 the United States Geological Survey instituted an inquiry to determine the smelting capacity per retort. The result of this inquiry gave $4\frac{1}{4}$ short tons of spelter as the maximum output per retort with steady operation.

The zinc content of ore smelted ranges from about 20 per cent. in some Leadville carbonates to 60 per cent. in Joplin blende. The spelter yield per retort does not vary exactly with the zinc content of the charge, for the smelting loss is about constant for each charge. Hence, two charges of 30 per cent. zinc ore will show double the loss of a charge of 60 per cent ore, or probably more than double, on account of the extra amount of foreign material in the charge.

During the period of 1906-1908 about 62 per cent. of the spelter smelted in the United States was produced from Joplin high-grade ores. In the last few years only about 40 per cent. of the total has been smelted from Joplin ores, and owing to this more extensive use of lower-grade ores the capacity per retort must tend to be somewhat lower than in 1908. Again, owing to the large probable production for the current year the high-grade Joplin ores will constitute a still smaller proportion of the total than heretofore; hence the average output per retort will be lowered still further. Another fact that tends to reduce the average is that owing to the unprecedented difference in price between "prime western" and high-grade spelter, a considerable number of retorts are employed in redistilling "prime western" spelter to improve its grade, reducing by that much the capacity for smelting ore and hence the average output per retort. These facts are offset to a certain extent by the improvement in zinc recovery which must have taken place since 1908. It is plain, however, that an exaggerated notion of the probable output of spelter will result from multiplying the number of retorts by $4\frac{1}{4}$ tons.

(Continued on page 393.)

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For several years the United States Geological Survey has been giving the total number of retorts in existence at the close of the year. From these are subtracted the retorts in idle smelters and the retorts engaged in smelting skimmings and drosses, leaving the effective smelting capacity. The latter, however, may include an unknown number of idle retorts at smelters which are operating at partial capacity. It also counts as active through the year all retorts constructed during the year. Dividing the total quantity of spelter produced in 1910-1914 by the "effective" retorts for that period we have an output per retort of 3.5 tons. The actual average per retort can not be less than this and must be more, owing, as pointed out above, to the inclusion of idle retorts at operating smelters and of new retorts operating but a portion of the year.

Tables of Exports.

The following table of exports, taken from the records of the Bureau of Foreign and Domestic Commerce, show the exports, both domestic and foreign, by classes and destination for three six-month periods, beginning with the six months just before the European war. Another table shows the exports of lead and zinc by months, covering the same time. The table of exports by classes shows strikingly the increase in value of total exports of lead and zinc for these periods the total value increasing from \$9,409,251 in the six months just before the war to \$21,882,495 during the six months in which the war began and to \$51,061,829 during the next six months. The most striking increases were in exports of domestic spelter and sheets, zinc manufactures, brass, brass articles, and cartridges..

Exports of Lead and Zinc from the United States by six-month periods, 1914-15, by classes, in pounds.

	1914		1915	
	January-June.	July-December.	January-June.	
Domestic—	Quantity. Value.	Quantity. Value.	Quantity. Value.	
Zinc ore	16,083,200 \$275,184	6,137,600 \$113,280	1,355,200 \$24,791	
Spelter and sheets ..	1,659,858 100,657	127,954,164 8,440,011	128,735,815 11,627,295	
Zinc dross	572,477 29,084	4,498,590 211,860	5,863,250 345,387	
Zinc manufactures...	82,254	128,654	1,047,975	
Brass, old for re-mfr.	13,535,666 1,437,763	7,103,735 663,107	8,662,272 912,896	
Brass, bars, plate, sheets	3,084,938 443,187	4,030,869 465,966	36,251,304 5,683,217	
Brass, articles made from	1,862,515	1,894,373	10,924,990	
Cartridges	1,896,415	4,670,707	13,043,498	
Lead, pigs and bars..	40,323,662 1,511,800	77,120,238 2,989,874	115,903,983 4,936,730	
Lead manufactures ..	633,234	385,000	752,875	
Foreign—				
Zinc ore, contents ..	279,000 5,909	...	...
Zinc, block, pigs, old..	55,118 2,634	10,825,453 209,602	11,406,833 336,099	
Zinc dust	34,212 1,775	322,050 15,697	221,408 22,680	
Zinc manufactures ..	53	18,491	34,124	
Brass, old, for re-mfr.	12,585 1,586	1,068 135	...	
Lead ore, contents ..	6,724,525 245,205	...	...
Bullion contents	10,944,350 378,286	...	...
Lead, pigs and bars..	...	25,421,500 913,306	34,435,599 1,041,541	
Lead manufactures ..	1,810	432	51	
Lead used in articles exported with benefit of drawback ...	7,595,127 a301,500	11,416,486 a431,500	6,040,015 a262,700	
Zinc used in articles exported with benefit of drawback ...	3,761,879 a198,400	6,200,279 a330,500	510,678 a65,000	
Total	9,409,251	21,882,495	51,061,829	

Fig. represents the value of the metal used in making the articles exported with benefit of drawback. (Continued on page 394)

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**Exports of Lead and Zinc from the United States, by six-month periods, 1914-15,
by destination, in short tons.**

Pig Lead— Destination.	Jan.-June, 1914.		July-Dec. 1914.		Jan.-June, 1915.	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
Canada		28	4,082	.....	6,176	58
Great Britain	7,153	3,963	16,995	6,270	25,945	10,480
Netherlands	4,720	1,592	2,019	28	677	739
Belgium	2,101	746	560	.....	.....	.....
France .....	.....	.....	.....	560	8,585	1,171
Italy .....	.....	71	589	.....	1,560	2,030
Germany	5,141	1,681	2,241	.....	.....	.....
Russia	448	.....	6,263	5,717	7,623	1,741
Japan .....	.....	.....	2,247	.....	2,081	.....
Other countries	599	753	3,564	136	5,305	999
	20,162	8,834	38,560	12,711	57,952	17,218

Spelter and Sheet Zinc—

Canada		167	3,383	539	2,918	382
Great Britain	45	.....	40,802	2,897	31,100	3,477
France .....	.....	.....	8,463	1,902	15,849	1,396
Italy .....	.....	.....	1,651	.....	2,717	448
Germany	84	.....	.....	.....	.....	.....
Russia	667	.....	4,152	.....	6,671	.....
Japan .....	.....	.....	456	.....	187	.....
Other countries	34	.....	5,070	75	4,926	.....
Total	830	167	63,977	5,413	64,368	5,701

Exports of Lead and Zinc from the United States, by months, 1914-15, in short tons.

1914—	— Spelter and Sheet Zinc —			— Lead, pigs and bars —		
	Domestic.	Foreign.	(*)	Domestic.	Foreign.	(*)
January	230	28	.....	.....	1,363	.....
February	18	.....	.....	.....	166	.....
March	146	.....	1,881	.....	5,838	246
April	60	.....	.....	.....	5,931	3,663
May	107	112	.....	.....	2,045	2,420
June	269	27	.....	.....	6,348	976
July	157	.....	.....	.....	10,894	1,119
August	3,448	319	.....	.....	5,486	.....
September	19,045	1,120	.....	.....	2,793	921
October	10,259	1,140	3,100	.....	7,829	2,521
November	12,747	957	.....	.....	8,417	5,297
December	18,321	1,877	.....	.....	3,141	2,851
Total	64,807	5,580	4,981	58,722	21,545	9,506
1915—						
January	15,299	84	.....	.....	6,460	3,072
February	15,002	2,016	.....	.....	3,820	1,778
March	8,120	1,136	255	.....	7,023	2,301
April	8,842	77	.....	.....	19,936	5,133
May	7,635	1,104	.....	.....	15,312	3,021
June	9,470	1,286	.....	.....	5,401	1,913
Total	64,368	5,703	255	57,952	17,218	3,020

(*) Foreign lead used in articles exported with benefit of drawback

The Steel and Metal DIGEST

VOL. V.

NEW YORK, OCTOBER, 1915.

NO. 10.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.
C. S. Trench, President,
C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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THE BUSINESS OUTLOOK.

The past month, although a quiet one in American business, aside from the activity in industries engaged in war orders, and the sensational speculation and advances in industrial stocks in Wall Street, has in many respects, been one of the most important and serious ones we have experienced since the war broke out. Important for the exhibition of confidence in the future of business, the slow, but sure expansion in home trade and the splendid recovery in the iron and steel trade, and serious for developments political and commercial which at times threatened our peace and prosperity.

Two Dangers Escaped.

We have escaped two great dangers. The danger of being brought into the war through a break with Germany by reason of her submarine policy, and the danger to our trade prosperity by reason of our foreign customers being unable to finance further purchases. Both these dangers have been avoided. Germany has proved to be amicable to the stand we took, and the prospects are encouraging that our country will not be involved in the war—while the success of the Anglo-French loan of \$500,000,000 means we can continue to sell the Allies our crops and merchandise, because we are able to

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finance, with the savings of our own people, and with the assistance of our banks, our foreign customer's business.

What Will the Effect of the Foreign Loan be on Capital?

While we have escaped the last danger, it has yet to be seen what effect the transfer of idle capital and change of investment by this loan of \$500,000,000 is going to have on interest rates and the financing of home industries not connected with war orders. With a security carrying a prior call on the English and French Government selling at a price that will net the investors close to 6%, there must be a great change in interest rates for ordinary business undertakings that carry less security, or in which the investors cannot at a moment's notice, change or cash in their investments.

We know there is an enormous amount of wealth in this country, and it has been tremendously increased since the war, but has it been laying idle in the banks waiting for this opportunity? We think not. There must be some curtailment of other investments and higher rates for money by reason of this loan, and to that extent it must effect capital for new investments. It is ridiculous to say we will have as much money to expend in new constructions and enterprises after this loan is closed as we had before negotiations opened on it. The money will remain here, it is true, but our cash balance of trade is curtailed by just so much, since it is to be used to pay for exports. In other words, instead of having our customer's cash in our bank, we have his note in our pocketbook.

It has brought home the fact there is

a limit to the amount of goods we can sell for export for cash, and if our exports are to be continued we must extend credit, and no matter how good the bill receivable may be, it is never as safe or available in case of necessity as cash.

Wall Street Insanity.

Believing, as we do, that this foreign loan and the changes it makes in our cash account will limit surplus cash for outside investments, the feeling of alarm that the recent frenzied speculation in Wall Street creates in our mind is only natural. It is the most serious exhibition of stock gambling we have seen in years and the public is in it. As it has been running lately, the game is wide open, the sky is the limit and everything goes.

Of course, it can't last. Either the speculative gas must be let out in an orderly way, or it will go out with a bang and have a panic, which, while it lasts, will be adverse to legitimate business, although the best thing in the end.

Over Confidence in New Combinations.

The enthusiasm and the atmosphere created by this movement in speculative circles, together with the enormous war profits, seems to be permeating and possessing some of our largest capitalists, and we thus have rumors of all kinds of consolidations of companies, among them some of the largest in the iron and steel trade. The basis is undoubtedly a sound one since it is founded in the belief that business in the future is to be conducted by big units, but it seems that such undertakings are hardly wise at the present moment, with so much to justify conservatism, both as to the financial situation, and also the attitude of the people and ad-

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ministration to combinations of any kind.

The Labor Situation.

Were it not that people are too excited over the war and its effect on their business, present and prospective, we would be hearing a lot about the strikes and the demands that labor is making for an 8-hour day, higher wages, and which, under stress of large orders are being granted. This, we believe, will plague us in the future. Labor never takes a step back without a fight. We are gradually building a platform of hours and pay based on extraordinary war orders and conditions, that may end, one may say, any day, and this in time of normal business and profits, will be a serious matter to contend with.

Apex of Ammunition Orders Has Been Reached and Passed.

We believe we have reached and passed the apex in our war munition orders. Neither are we justified in expecting any increase in the late volume or our exports of food and other commodities.

Our reason in regard to ammunition orders is that while the necessities of the Allies (the only belligerents with whom we can trade) will be as great as ever, these countries are in a very different position in regard to the production of munitions from what they were six or even two months ago, by reason of the arrangements they have since made to manufacture these goods themselves.

Some months ago they were terribly excited over their inability to provide rapidly enough and in sufficient quantities the munition they needed, and

consequently rushed in to buy from us at any price, provided they could get the goods. The situation is now changed, and it is seen in the metal trade by the falling off in excitement and inquiries for metals needed for these orders. Lloyd George, in his speech September 9th, stated that England has taken under control for the first time in the history of any country, 715 establishments in England making munitions of war, representing practically every workshop turning out ammunition in England, and are making prodigious efforts at home to increase the output. The English Government has set up 16 national arsenals, and are at present constructing 11 more. He also said that the work planned to be done at home would require 80,000 more skilled workmen and 200,000 unskilled workmen. Some of this skilled labor they will draw from this country.

This, of course, should increase the consumption of metals for these munitions, but the difference is going to be, in our opinion, that more will be consumed by the countries engaged in war and less by America. In the meanwhile in the strikes at our ammunition factories and in the demand for an eight-hour day and increased wages, our workmen are playing in the hands of our competitors, and making it more difficult to compete on these orders, because while there has been comparatively little competition in the past, the competition is going to increase in the future.

Europe Must Economize.

The economy started by war in the countries involved will continue to increase with each month, as the necessity for such economies must increase.

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if for no other reason, that in no other way can these countries continue to stand the waste and strain. They must consume less or produce more at home, or buy less of their neighbors if their awful expenditures caused by the war are not to lead them to bankruptcy, and the Governments realizing this are doing their utmost to bring it home to their people.

One Way in Which America Will Feel the War.

This is going to be one of the ways in which America is to suffer from the terrible loss caused by the war. We are going to have customers who must economise in their purchases. The present abnormal export demand we are having caused by war conditions must end when peace is declared.

Must Prepare for Normal Peace Conditions.

It is quite right we should take every advantage of the present situation, but it is of greater importance and permanent value for us to bend our energies to build up an export trade founded on peace demands. Consequently the efforts being made in this direction by the National Foreign Trade Council under the leadership of President Farrell of the United States Steel Corporation, should meet with the co-operation of every business man.

Sharp Contrast Between Wall Street War Business and Actualities in the Metal Trade.

There has been a sharp contrast between the metal trade and Wall Street during the past month. In Wall Street sensational advances have taken place in the securities of industrial companies using metals, based on the reports of the large war orders booked and the profits that are to accrue thereby to

these companies while in the metal trade war orders have hardly been a feature lately, as represented by the purchases of metals. The conclusion is that Wall Street is getting the benefit of orders previously placed and as far as metals are concerned, provided for in the enormous buying and sensational advances of last June and July. Trading in metals and metal orders in the past month has been below the average of normal times, of course partly because of the enormous business of the past few months. But the dullness is not liked, and it is very evident that new war orders are not up to expectations.

Iron and Steel Situation the Brightest Feature.

Conditions in the steel market have continued to strengthen and the pace is such as to suggest that what has thus far been a normal improvement, comparable in strength and general appearance with the last two major movements in steel, in 1912 and 1909, may eventually develop into a run-away, recalling nothing but 1899, when prices advanced by leaps and bounds, pig iron to \$25, billets to \$40 and more and the heavy rolled steel products to three cents and more per pound.

The developments are confirming our predictions of a year ago, when 70% of our capacity was idle, we predicted that the iron and steel trade would before long, be found undersized for the demands it would have to face. This is the condition to-day.

Immigration and the Labor Situation.

The war has restricted immigration to such an extent that if we regard the increase in our population that occurred through the movement of per-

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sons into the country, less those who left, in the fiscal years 1913 and 1914 as normal, then from July 1, 1914, to August 1, 1915, there has occurred a deficiency in our population of about 650,000 persons. It was feared that a labor shortage would have occurred before this, while there is as yet no general shortage there is a scarcity at various points. In normal conditions a labor shortage indicates prosperity. While a labor shortage caused by the withdrawal of population or the failure of a normal increase to occur is an entirely different thing. There is the economic fact that if a labor shortage tends to intensive production prosperity is encouraged. There is one mouth to be fed and if the owner of the mouth can be induced to produce more, why then, prosperity is increased.

The Importance of the Final Outcome of the War.

A favorable feature has been signs that the tide of war has turned in favor of the Allies, which is of great significance to our business, owing to the fact they are the only belligerents with whom we can trade. It also makes a great difference whether your customer is depressed and demoralized, or whether he is feeling encouraged and confident, whether he is able to pay for the goods he buys, or trembling on bankruptcy. Aside from the effect on the financial position which will to a great extent depend on the success of England, we believe the best barometer for business, real and sentimental in this country, will be accord-

ing to the way the fortunes of war favor the Allies. Their final defeat would result in a demoralization and panic that would prostrate finances and business with us, and open the prospect of changes and contingencies in which we would be involved, the result of which would be sensational.

A Time for Conservative Optimism.

Some of these remarks we know will be considered pessimistic by some of our readers, but we wish to disclaim any such attitude.

To judge from the general talk at present, there is no limit to what we are to do in the future. But the boom we are enjoying now is exactly what we are on record in the **Digest** as predicting a year ago when depression with us was so profound. We shall do well to keep what we are enjoying in these profits and business that the needs and distress of other nations have given us. But what we need is better home trade, and it is a timely question to ask—why are we not enjoying it?

In a time when everything "looks rosy" and everyone is exaggerating favorable features, we think it is timely to remember the present situation has some dangers. We should feel a great deal more confident of the future when we are having a quicker recovery from depression in our home trade which at present in many lines is not above 60% of normal. A country can hardly be called soundly prosperous when a large portion of their railroads are in the hands of receivers.

BUSINESS TRENDS.

NEW INCORPORATIONS.

Papers filed in the Eastern States for companies with \$1,000,000 capital or over in September represented \$286,625,000. However, this total includes the new \$240,000,000 E. I. Dupont de Nemours Company, representing a readjustment of the capitalization of the old concern. In a general way, therefore, the returns make an unfavorable showing. In the preceding month the total was \$67,100,000 and in September a year ago \$54,800,000. Companies incorporated in all States, including those of the East, amounted to \$323,950,000. This compares with \$148,186,000 in August. In September a year ago the figures were \$87,551,400.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. ..	\$51,150,000	\$120,050,000	\$332,450,000
Feb. ..	53,950,000	51,575,000	191,500,000
Mar. ..	70,050,000	57,700,000	166,030,000
April ..	32,200,000	136,185,000	198,718,000
May ..	78,950,000	62,700,000	172,200,000
June ..	181,247,100	70,050,000	79,550,000
July ..	71,100,000	68,700,000	83,650,000
Aug. ..	67,100,000	50,600,000	63,500,000
Sept. ..	286,625,000	54,800,000	42,750,000
Total ..	\$963,472,100	\$740,060,000	\$1,433,998,000
Oct. ..	.....	35,487,500	70,856,300
Nov. ..	.....	81,650,000	77,800,000
Dec. ..	.....	105,450,000	55,250,000
Total ..	.....	\$894,947,500	\$1,534,254,300

OUR ENORMOUS FOREIGN TRADE.

Our August 1915 export total is the heaviest of the year and the largest ever known in that month, exceeding that of any month in the country's history previous to November 1912. It shows a marked increase over the total for August a year ago at which time the export trade was at a low ebb—the smallest in any month for ten years.

Imports do not show any particularly distinctive features and the excess of exports for the month is a large one. For eight months of the present calendar year exports are, of course, enormously in excess of the like period last year, \$921,000,000 in

fact, or at the rate of \$115,000,000 a month, and the excess of exports over imports is an even greater one.

Our foreign trade for August and eight months compares as follows:

	August.	1915.	1914.
Exports	\$261,975,771	\$110,367,494	
Imports	141,729,638	129,767,890	

Excess of exports \$120,246,133 *\$19,400,396

* Excess of imports.

Eight months ended August 31st:

	1915.	1914.
Exports	\$2,232,758,886	\$1,311,349,656
Imports	1,150,784,196	1,270,361,263

Ex. of exports \$1,081,974,690 \$40,988,393

SEPTEMBER IRON PRODUCTION BREAKS ALL RECORDS.

Iron production in the United States last month, as reported by the "Iron Age" today, broke all daily records in the trade. September's output was 2,852,561 tons, or 95,085 tons a day, well beyond the daily rate of 92,369 tons in February 1913, the previous record month. The 268 furnaces in blast October 1st—a gain of 19 in the month—had a daily capacity of 97,585 tons, and as a few furnaces have been blown in in the past week, pig iron production is now at the rate of about 36,000,000 tons a year. It was 33,500,000 tons a year as September opened.

PIG IRON PRODUCTION CONTINUES

The daily average production of coke and anthracite pig iron in the United States by months since January, 1912, is given as follows by the "Iron Age":

	1912.	1913.	1914.	1915.
January	66,384	90,172	60,808	51,659
February ...	72,442	92,369	67,453	59,813
March	77,591	89,147	75,738	66,575
April	79,181	91,759	75,665	70,550
May	81,051	91,039	67,506	73,015
June	81,358	87,619	63,916	79,361
July	77,738	82,601	63,150	82,691
August	81,046	82,057	64,363	89,666
September ..	82,128	83,531	62,753	85,085
October	86,722	82,133	57,316	.....
November ..	87,697	74,453	50,611	.....
December ..	89,766	63,987	48,896	.....

BUSINESS TRENDS.

COMMERCIAL FAILURES.

Commercial failures in the United States during the first nine months of this year, as reported by R. G. Dun & Company, totaled 17,288 and supplied an aggregate indebtedness of \$241,461,000. In point of number, these figures exceed those of any similar period in the past, but the liabilities are materially smaller than the \$271,918,021 shown in 1914, when the amount was distorted by the chain of dry goods suspensions that alone involved upward of \$40,000,000. While the insolvency statistics, as a whole, make an adverse comparison with former records of late there has been a very pronounced trend toward improvement, and the returns for the third quarter, besides showing only 250 more reverses than in 1914, disclose a reduction of 2,668 failures, and nearly \$53,000,000 from the opening three months of the current year. In contrast with the second quarter there were 976 fewer defaults and \$30,000,000 less in the sum owed, whereas in the preceding year 581 more firms failed in the third than in the second quarter, though the indebtedness substantially decreased. It is also significant that September was the first month of the year to show a smaller number of suspensions than in 1914, the difference being fully 200, while the liabilities were the lightest since November, 1912.

COMMODITY PRICES.

The index numbers compiled by Bradstreet's Journal as of September 1st, stands at \$9.7934, whereas on the like date in August, it stood at \$9.8113 and on July 1st it was \$9.8598, that sum representing a record high point.

The slump from August as disclosed by the index number for September is but a fraction of 1% while as compared with the top level it is only six-tenths of 1%. On the other hand, the most recent exhibit reflects a rise of three tenths of 1% over September 1, 1914, when prices displayed some slight ease following the smart upturn noted on August 15, almost directly after the outbreak of the European war. Incidentally, the current price index is the highest ever set forth at this time of the year.

THE STOCK MARKET.

Four million share days in succession this week and five all told for the month is the outstanding feature of the record of Stock Exchange transactions for September. The volume of stock transactions during the month reached a total of 18,558,765 shares, against 20,387,134 shares in August. The par value of bonds sold during September amounted to \$81,171,000, as compared with \$73,924,000 in August. Comparisons with the corresponding period of last year cannot be made, as the Stock Exchange was closed for the entire month in September. In 1913 the stock transactions for September amounted to 7,652,751 shares, while the month's bond sales aggregated \$34,801,600. The total stock transactions for the nine months of 1915 is thus brought up to 145,343,879 shares, against 64,729,417 shares for the corresponding period of 1913. Bond sales for the same period aggregate \$602,284,700, as compared with \$381,985,200 in 1913.

The heaviest sales of stock for one day in September were recorded on Tuesday, September 28, when 1,732,600 shares changed hands. Bond transactions reached the maximum figure on Wednesday, September 29, by sales amounting to \$6,992,000. Exclusive of Saturdays, the smallest volume of business in stocks was reported on Monday, September 13, when the total sales were 347,671 shares. Bond transactions were lightest on Friday, September 17, amounting on that day to \$2,165,500.

BUILDING OPERATIONS

Building trade activity evidently turned a corner in August, because that month's report of expenditures is one of the best in some time. Some explanation, however, necessarily goes with the fact that August this year showed a gain of 13.7% in expenditure over the like month a year ago, and that the gain shown is the largest reported in any month since early in 1913.

The record of building expenditures in leading American cities during the past three months as reported by Bradstreet's Journal follows:

April, 155 cities	79,469,221	84,565,850	D 6.0
May, 155 cities	85,513,438	85,212,743	F 3
June, 155 cities	67,542,904	86,458,820	D21.8
Second quarter	232,525,563	256,237,383	D 9.2

Three Great Price Movements.

Iron and Steel Price Movements in 1909, 1912 and 1915 Compared. The Present Movement Differs Greatly From its Predecessors. Accompanied by Insert Diagram.

SIGNIFICANT SUGGESTIONS AS TO FUTURE COURSE OF PRICES.

Price movements in the iron and steel trade are always an interesting study. They reflect, of course, the general volume of business and therefore suggest the degree of prosperity enjoyed by the industry. Study of the movements, however, reveals much more, for various cross currents are disclosed, indicating changed conditions as to the relations between the different commodities. A comprehensive study of price movements always throws considerable light upon the future.

There is no better time, we think, for a general comparison of price movements in the iron trade generally than the immediate present. We are in the midst, not at the end, of a general upward swing, and we all want to secure as much light as possible on the prospects for the remainder of the movement, not merely as to its general extent and duration, but also as to the relations that are likely to obtain between the different commodities during the balance of the movement.

For instance, there are questions like these upon which light is desired: Will finished steel prices advance more rapidly, per month, in future than they have recently? Will they advance as much again as they have advanced? Will billets advance more or less, proportionately, than finished steel? Will scrap advance above pig iron, or will pig iron diverge farther from scrap? What movement is in prospect for coke?

The basis for studying the future comprehends two groups of facts: (1) The developments that have been produced in the past by various influences; (2) The existing conditions.

To study price movements in the past requires either the citation of a mass of statistical tables, always more or less tiresome even if illuminating when studied, or a diagram, always interesting in itself. A single glance at a diagram shows a great deal, and a few minutes of study shows a great deal more. We have chosen the diagram method and present in this issue a

comprehensive chart showing three great price movements, those of 1909 and 1912 and that of the present, as far as it has gone. To present the movements on as large a scale as possible, and thus to bring out the details the more clearly, only the periods of actual advances are shown, plus enough time to cover clearly the low point at the beginning and the high point at the end, and thus we have March, 1909, to February, 1910; November, 1911, to March, 1913, and December, 1914, to the present. All the plotting is done by monthly averages of daily prices as quoted in the **American Metal Market**, these averages being taken as published in **Metal Statistics** and the **Steel and Metal Digest**. To these tables the reader is referred for the specific prices.

Considerable study was necessary to outline the basis upon which the diagrams should be constructed, so that the maximum of "action" should be found in the lines representing price movements and yet the lines be kept within the limits of the diagram. Five fundamental commodities were selected: (1) Connellsville furnace coke at ovens, and for prompt shipment, as there are no contract prices that can be quoted continuously, the contracting being usually done in short periods every six months; (2) Heavy melting steel scraps, delivered Pittsburgh; (3) Basic pig iron; (4) Bessemer steel billets; (5) Our composite finished steel, representing accurately the average of all important finished steel products except rails.

Coke is plotted on a scale which makes it move two and one-half times as rapidly as scrap or pig iron, i.e., a change in the coke price of 40 cents a ton makes the coke line move the same distance on the diagram as a change of \$1 a ton in scrap or pig iron.

Billets and finished steel, per net ton and gross ton respectively, move on the same scale as pig iron and scrap, but to save space and conduce to emphasis the scale absorbs a difference of \$5 a ton be-

tween pig iron and billets, and \$7 a ton between billets and finished steel. That is, if pig iron were \$20 a ton, billets \$25 and composite finished steel \$32, the three commodities would be plotted at the same point on the diagram. By the amount that the billet line is above the pig iron line billets exceed a spread of \$5 over pig iron, and by the amount that finished steel is more or less than \$7 above billets the finished steel line diverges from the billet line. It was found that if basic pig iron were plotted at valley furnaces the line would tangle badly with scrap, so it was decided to plot pig iron at Pittsburgh instead. Thus scrap and pig iron in the diagram are both plotted delivered Pittsburgh.

Uniform Rates of Advance in Three Movements.

In 1909, 1912 and in the present movement the rate of advance in prices has been rather similar. In 1909 the advances were practically uniform throughout the movement. In 1912 the fore part of the movement was at a slightly lower rate and the latter part of the movement at a slightly higher rate. In 1915 this feature of a slow and then a more rapid movement, absent in 1909 and not strongly marked in 1912, has been rather conspicuous, but the total swing from the beginning of this movement to the present has been at substantially the same average rate.

This fact is rather significant. We know that the 1909 rise was more or less artificial. It was produced largely by the suddenness of the preceding drop, and partly by there being considerable team work, though no actual agreement, among producers. Low prices ruled for such a short time that buyers had little opportunity to become familiar with them, and thus they countenanced the advances the more readily. The 1912 movement, with advances to approximately the same levels, but starting with somewhat lower prices, and after a long period of relatively low prices, must therefore be regarded as a much more substantial affair than that of 1909. The present movement must for similar reasons be regarded as substantial. It is not a mere reaction or rebound; it is a definite movement based upon conditions as they exist.

In none of the commodities have prices advanced as much as in 1909 or 1912. The diagram itself suggests further advance

and we know from studying conditions as they exist today that further advances may naturally be expected. There is as much reason now to expect prices to advance above the present level as there was three months ago to expect them to advance above the level then ruling. Further study will show, however, that the price advance prospects are not equally strong in all the commodities.

Divergences in the Movements.

While the movements look more or less alike in general, a very little study shows that there have been important divergences in the relations between the commodities in the different movements. Finished steel advanced in the 1909 movement at the rate of 65 cents per net ton per month. For most of the time billets advanced at the same rate, but the advance stopped sooner. Finished steel during the major portion of the movement was about \$10 a net ton above billets per gross ton, and as the diagram absorbs only \$7 the lines kept well apart, billets below steel, while towards the end of the movement they diverged farther, finished steel advancing while billets were stationary.

In the 1912 movement precisely the reverse occurred. Billets and finished steel were at a larger spread early in the movement, but billets advanced the more rapidly, and they kept on advancing even after finished steel had started to soften. The billet line crosses the finished steel line at the point of time at which the market spread was reduced to \$7 a ton, by the continued advance in billets while finished steel was substantially stationary, and in March, 1913, billets were less than \$7 a ton under the average price of finished steel.

In the 1909 movement billets softened before finished steel. In the 1912 movement finished steel softened first. In the present movement billets have already shown greater strength than finished steel, although finished steel has been advancing in fashion comparable to advances in the two preceding movements. Such a divergence cannot continue indefinitely, for finished steel would drag on billets and billets would pull up the finished steel.

Scrap and Pig Iron.

Scrap and pig iron, while they show divergences from each other, are alike in that they are raw materials for the manufacture

of basic open-hearth steel. Between the 1909 and the 1912 movements there was a distinct difference. In the former, scrap hugged pig iron all the way; in the latter scrap lost its hold and declined sharply while pig iron was still advancing a trifle. We do not feel justified in offering an explanation that our readers would be able to accept with as much confidence as some of our other deductions, but we suggest a theory that the 1912 movement, known to be more substantial than that of 1909, involved greater actual ultimate consumption of steel, and therefore more production of scrap, than obtained in the case of the 1909 movement. Furthermore it is to be noted that scrap acted largely in the 1912 movement as it did in the preceding movement, beginning to decline several months before billets and finished steel began definitely to decline; it was pig iron which acted differently in the 1912 movement, holding up substantially as well as finished steel and nearly as well as billets.

In the 1909 movement basic pig iron and scrap, both delivered Pittsburgh, averaged about the same price. The lines cross and recross. In the 1912 movement scrap stayed below pig iron, delivered, by about a dollar a ton. In the present movement scrap started at a much lower relative level but has lately made up the difference. The higher relative price for scrap obtaining in the 1909 movement tends to support our contention that the movement was partly artificial, not based entirely upon ultimate consumption, whereby the outcome of old material would be less than normal.

In the present movement there is much less construction than is normal with such activity in steel production as has lately prevailed, and this by narrowing the supply of old material would tend to advance prices. On the other hand, there is an abnormally heavy production of scrap at the mills, through the production of much war material, with unusually liberal cropping. Apparently these influences have thus far about balanced, producing a normal price relation between scrap and pig iron at a time when abnormal conditions prevail.

By-Product Coke.

By-product coke is written large over the lower part of the diagram, not in letters but in lines. Observe how coke bulged sharply upwards in the 1909 movement, and still more sharply in that of 1912, and what

a dead level, comparatively, has characterized it in the present movement. That, of course, spells by-product coke. In December, 1912, it required only 3.8 tons of furnace coke to buy a ton of heavy melting steel scrap, while lately it has required about 8.7 tons, more than twice as much. At the top in 1912 coke was approximately one to four, compared with basic pig iron, valley. Lately it has been between 1:8 and 1:9.

The Future.

Steel prices will continue to advance. There is no reason to suppose otherwise. They have been advancing thus far, in perfectly characteristic fashion, and there is nothing in present conditions to arrest their advance. They still have several dollars a ton to move before they touch the high points of the last two movements, but there is no reason to suppose advances will stop at that precise level. On account of the war and other conditions making the demand, there is no particular level of prices at which demand will be deterred from expressing itself.

There has been a greater proportionate advance in unfinished steel than in finished steel. This may not be unusual for the steel market in general. In 1909 unfinished steel advanced as rapidly as finished, and in 1912 it advanced more. Nevertheless it is not logical. It is not going deeply into technical details to point out that finished steel is made from unfinished steel. Certain services are performed in the finishing. A manufacturer is entitled to the cost of his raw materials plus the value of the services. Does the value of the finishing service decrease as prices in general advance? Logically there should be a greater, not a less spread between billets and finished steel as prices advance.

Apparently one explanation is that steel finishing departments are simply sales departments for steel, representing regular customers, and it is logical to sell the regular customer at lower prices than the irregular customer, represented by those who buy billets at relatively fancy prices. The regular consumers of billets and sheet bars, of course, do not as a rule pay the full advances represented by market quotations. We have plotted the prices which new buyers of billets would have to pay in the market, not the settlement prices on steel as delivered.

It is well to dwell more upon this fact

that billets have crossed finished steel in the sense that billets have passed sharply above a line representing a conventional spread below finished steel. This trend cannot continue. In our diagram the billet line in future cannot diverge farther and farther above the finished steel line. One line must attract the other. Which will exert the more powerful influence?

To reach an opinion on this, one will do well to consider what is the general market influence tending to make any prices higher. The influence is "the scarcity of steel". As the steel trade ordinarily uses the expression it means that while the demand for structural shapes is not large relative to the rolling capacity of the shape mills, the plate demand not large relative to the rolling capacity of the plate mills, and so on, the demand for steel in general is such that it would absorb more raw steel than is being produced. Should high prices tend to restrict the consumption of finished steel, raw steel would become more plentiful and billet prices would tend to become more in line with finished steel prices, for billets are normally the more flexible, finished steel usually being held fairly well for a time after a high point has been reached.

There is, however, no likelihood, within a few dollars a ton of present prices, for high prices to restrict the consumption of finished steel. There is, on the other hand, a strong demand for unfinished steel, a demand not only strong but of a peculiar character, seeing that it has trended lately towards forging billets for the production of war material. Many mills that make rolling billets ordinarily are not adverse to making forging billets at a price. Thus our conclusion is that billets will probably continue to advance and that if they do they will pull finished steel with them. Finished steel may hang as far below billets as the rope will stretch, but billets will pay no attention to the danger of the rope breaking; let it look to itself.

Raw Materials in Future.

As the diagram plots monthly averages, the lines at the end are pointing sharply upward if September averages were sufficiently above August averages, but pig iron and scrap prices have not been trending distinctly upward very lately, not since the middle of September in valley basic iron or since about the middle of August in heavy melting steel scrap delivered Pitts-

burgh. In the early part of this movement pig and scrap lagged behind steel, something they distinctly did not do in the early stages of the 1909 and 1912 movements. That is against them, as is likewise the fact that at the present movement, or in the present week or fortnight, they are not trending upward as is still. It is true scrap appeared to have a sharp advance at the beginning of this movement, but that was simply a recovery from an altogether abnormal condition of lowness, something one might as well forget about since it means nothing in the long run.

Curves of pig iron prices, however, have kinks of their own, much more pronounced than those in finished steel curves. Recall, for instance, what occurred in 1906. Steel prices advanced very little indeed in that year. They had already reached a fairly high level in 1905, and there were only occasional and slight advances in 1906. Even billets did not advance much. Basic pig iron, on the other hand, advanced sharply. The advances were not on paper, either, for we cite the averages computed by W. P. Snyder & Company, from the actual market sales, showing sales showed: January, 1906, \$17; July, \$17.25; December, \$23. There was an advance! Scarcely at all was that due to increased consumptive demand, it being due chiefly to the fact that after a hard campaign many steel works furnaces had to go out for repairs and the merchant furnaces were called on for more material. At some time in the future, therefore, it is quite possible pig iron will take a sudden jump, and scrap will naturally move with it to an extent. If the high pressure continues long enough, it is almost certain that the time will come.

The Future of Coke.

Up to the end of September Connellsville furnace coke for prompt shipment had not advanced above about \$1.75, and thus it had advanced scarcely at all when in the 1909 and 1912 movements, with similar advances in scrap, pig iron and steel, it had advanced sharply. The record of prompt furnace coke, however, does not show altogether the full strength of the coke market. When prompt furnace coke was at \$1.75 or less sales were made for delivery late in the year at \$1.85, \$2.00 and \$2.25, the lower price being on coke below standard and this higher on coke above standard. Sales were also made for 1916 delivery at \$2.25 and \$2.35. When in De-

cember, 1912, prompt furnace coke was \$4.00 a ton, causing the line in our diagram to reach such a high altitude, contracts were not being made at higher figures, but at lower figures. Our recollection is that the top price on contracts, for six months, was \$3.50, while contracts at above \$3.00 were rather exceptional. If the diagram were continued another six months it might not show coke at such a dead level.

It must be added, however, that a number of operators have been disposed to sell over the full year 1916 at slightly less than over the six months, indicating an expectation that through the completion of many more by-product ovens in the second quarter of next year, or thereabouts, the coke market will eventually be easier even though demand for steel and pig iron increases somewhat.

Effect Of Foreign Loan On American Trade.

The National City Bank in an interesting discussion of the Anglo-French loan declares that the purpose of this loan is the protection and support of this country's regular trade, which is threatened by the unsettled state of the foreign exchanges. It has been apparent for some time that something must be done to create credits in the United States against which our foreign customers can draw in payment of their purchases, or that the purchases must be reduced. The war has thrown all international trade out of balance, and created problems that could not arise under normal conditions. This country is accustomed to export a large volume of products and its industries are adjusted to that state of affairs. The situation which has been developing for several months cannot be allowed to drift without danger of an interruption to exports and a congestion of products in the home market. This important authority discusses each phase in the situation as follows:

The Exchange Situation.

This difficulty about making international payments must be distinguished from any ordinary problem of money-raising at home. It is a different problem. A would-be buyer in London might have ample funds to his credit in a London bank, against which he could draw for payments at home, but he could not use it for payments in New York unless he could find someone who would take it in exchange for a New York credit. In other words, it is not a problem of raising money, but a problem of exchange.

Ultimately, settlements must be made by

the transfer of some kind of property. Ordinarily, exports and imports so nearly balance that the difference is settled by shipments of gold or the temporary use of bank credit, but with monthly balances running above \$100,000,000 this method is impracticable. The sale of American securities in this market is another method, but these securities are in private hands, and do not come out fast enough. The result is that the demand in London, Paris and all European markets for exchange on New York so far exceeds the supply that a high premium must be paid for it. Thus, on the basis of gold contents, the equivalent in French money of the United States dollar is 5.18 francs, but within the last month French payments in the United States have cost as much as 6 francs to the dollar, or a discount of about 15 per cent. The gold par of British sovereign in United States money is \$4.8665, but it has been down to \$4.49. The Russian ruble is at a discount of 36 per cent.

This discount upon foreign money or premium upon the dollar means that exchange on the United States is hard to get. There is not enough to go around, and higher rates for it adds just so much to the cost of American goods to the foreigner. It is something that he pays and that the seller does not get; it goes to the fortunate individual who has credits in the United States for sale. The Englishman or Frenchman who is able to sell goods or securities or borrow money in the United States can sell the credit so created at a premium to his fellow countrymen who want to make purchases here.

The situation therefore encourages exportation to the United States, and discourages importation from the United States. This is the natural corrective for an unbalanced state of trade, and if nothing is done by organized effort to create an additional supply of credit here against which foreign drafts may be drawn, the disparity between foreign money and United States money will continue to increase until there is a sufficient reduction of our exports, or increase in our imports, to establish an equilibrium.

The fall in the pound sterling to \$4.49 occurred despite heavy shipments of gold and securities, and the recovery to higher levels was doubtless due to the negotiations for credit that have been since going on. Nobody can tell where the rate would go to if the effort to create the credit should fail, but it would have to fall until an equilibrium between payments from and to this country was reached.

Gold and Securities.

It is true that a considerable amount of gold can be forwarded and will be forwarded in addition to any loan likely to be raised here, but the amount of gold that can be spared from foreign reserves is limited, and furthermore, it is not desirable from the standpoint of the United States that a clearly disproportionate share of the world's gold should be drained into the United States.

The sale of American securities by foreign holders is not a definite reliance. The people who own American securities are not necessarily the same people who want to make purchases in this country, and although sales are being made continually there is no control over them or certainly about them. The Governments could adopt measures to force them out, but such action would have a drastic effect that might cause disturbance here.

Moreover, all such suggestions ignore the fact that the exchange situation requires prompt action. The United States stands to-day with the largest crop in its history practically ready for market, and already beginning to pass out of the hands of producers. The latter are interested in the prices of the next few weeks or months. This country does not want its exports held up waiting on foreign sales of our securities. Any delay in the movement is likely to affect both the volume and value

of exports. Uncertainty and confusion in the exchange situation will be a barrier between us and our foreign customers. This was one serious objection to the scheme to require the deposit of American securities as collateral. The Governments own no American securities.

All Exchanges Affected.

More than one-third of all our exports last year went to Great Britain and France, but that does not tell the full importance of the exchange relations between New York and London, England is a great trading country; her imports are very much greater than those of any other country, and resulting from this fact the exchanges of the world have pivoted upon London. Conditions created by the war have favored the use of dollar exchange, or payments through New York, to an increased extent, but a change of this kind moves slowly. Transactions in exchange spring from transactions in trade and finance, and the world's payments will not be generally made through New York until the United States takes the lead as a trading and lending nation. Moreover, we cannot help ourselves into such a position by drawing into our shell, but only by increasing our activities and relationships abroad.

Whatever the future may have in store, the present situation is that many countries make and receive payments through London, and in order to make payments in the United States it is often necessary for them to convert London credits into New York credits. The gross exports of South America amount to about \$1,178,622,061, the figures for 1913, the last year of normal trade. The United States received of these \$217,734,629, and the products which go to Europe are so generally like our own that we cannot absorb them here. How are the countries of South America to buy more goods of us unless they can convert their credits elsewhere into dollars? The same is true to a great extent of Holland and the Scandinavian countries, and of others. International trade is a complicated maze of transactions, and a breakdown of exchange between New York and London will affect trade with many countries.

America's Problem.

It is evident that this country has another and different interest in this loan than that of a lender. It is interested as

a country with \$2,700,000,000 worth of goods to sell abroad in providing the credits by which the balances may be settled, and by which a stable basis for the entire trade may be maintained. Not only the amount of sales represented by the balances is affected, but practically all of them, at least so far as influence upon prices is concerned. And a great volume of domestic trade is directly dependent upon a free movement of our surplus products to foreign markets.

It is held by some people that our trade will go on, somehow, because, as they say, the purchases must be made. But a one-sided trade cannot go on without the help of credit. There must be payment of some kind. When a partial crop failure occurs in one of our States, the purchases of that locality are necessarily curtailed, unless the people can command credit outside. The people of Great Britain cannot send their lands or houses, or their railways and other fixed wealth to the United States; the only thing they can do promptly is to use their Government credit.

The Neutrality Question.

There are people, who, either because their sympathies are against the Anglo-French Allies, or because the loan seems to them inconsistent with strict neutrality, or because they think it will tend to prolong the war, are opposed to the transaction. We believe these views are due to mistaken emphasis upon the relations of the loan to foreign interests, and failure to appreciate its relations to domestic interests.

The war is so stupendous an affair that business all over the world is affected by it and more or less related to it. Anything that this country may do, or refuse to do, is likely to have some bearing on the war, and affect the combatants unequally. We cannot be governed by such considerations where our own interests are concerned and we are certainly within our rights. It is not desirable or for the good of the world that the rights of neutrals shall be abandoned, and there would seem to be no better rule for the observance of a consistent and just neutrality than to put American interests first wherever it can be done under the clear authority of international law. It would not be neutrality for this country to sacrifice its own

interests to serve the interests of one of the belligerents; on the contrary, it would be an extraordinary act of favoritism.

The people of this country had a great foreign trade before the war, and they surely have a right to safeguard it by granting credits to cover purchases in this country. If the individual farmer or manufacturer granted direct credit on sales to foreign customers there could be no possible objection to it, and the case is not changed if American bankers and investors carry the credit for him.

Why should the fact that such a credit may be incidentally advantageous to one or the other of the belligerents be treated as of more importance than the fact that it is of great advantage to the producers of the United States? The interests of the latter are properly entitled to the first consideration here. They have a valid claim to the services of the American banking system for assistance in their legitimate trade.

If, the credit for the purpose of supporting foreign exchange is to be condemned on the ground that it helps one side of the conflict, or prolongs the war, then the purchase of American securities from belligerent holders must also be condemned, for it accomplishes the same result. If our securities would come back fast enough they would create all the credits necessary. Neither side allows its citizens to trade with the enemy, for the reason that doing so may strengthen him, but there can be no question of the right or propriety of neutrals trading in their own markets.

There has been some discussion of the advisability of excluding all payments for munitions of war from the proceeds of the loan, but while doing so might make the proposal more acceptable to some persons, it is evident that there would be little real effect to such a provision. The loan will provide only a minor part of the credits that will be created here, importations of goods, gold and securities supplying the larger part. A restriction upon the uses of the loan credit would only mean that payments for the excluded articles would be made from the other sources, or in other words, from the larger pocket. The circumstances would scarcely warrant emphasis upon such a provision.

Topical Talks On Iron.

XXX. The Future of Iron.

Iron has an illimitable prospect. We have our day dreams, we build our "castles in Spain" but it is really seldom that we actually try to look into the future. We are much more likely to try to depict the future we should like for ourselves than to endeavor to discern the future of a race or an industry. Yet which is the more profitable? We shall be what circumstances and our efforts make us, and how can we properly mold our efforts except by gaining all the knowledge we can of the probable circumstances. The men who have succeeded have generally been men who looked into the future, planning their efforts to meet the expected circumstances. Patrick Henry suggested, "I know no way of judging the future but by the past" yet sometimes we study the past and forget that the study is of little use unless we follow it up by applying it to the future.

Roughly speaking, the production of iron has grown in practically geometrical ratio up to date. In manufacturing processes and in equipment there have been constant and rapid strides, up to the present. The field for the employment of iron has broadened and broadened, the increase in tonnage being due as much to employment in new uses as to expansion in employment in old uses. All these trends trace right up to date, hence it is reasonable to expect a continuance. In ten years we shall be making and using much more iron than at present, and in 20 years still more. The quality of steel, as a whole, will improve much more than the quantity will increase. In such a prediction one is on particularly safe ground, for in respect to quality we have only begun. Iron is old, but the steel of today is new. Crucible and similar special steels were made long ago, with laborious and expensive processes. Cheap steel is the creation of the Bessemer and open-hearth steel processes, dating back only about 60 years to their original conception, and until very recent years nearly all the effort was expended in cheapening the cost of manufacture. Now we have special steels in abundance, but they cost more than they will cost later, and they

are not as well known, or as widely used, as they will be later. As special steels become more common the average quality of the total production will thereby be enhanced, and the quality of the cheapest and commonest steel will undoubtedly improve. It must, for some buyers now at all grow wiser from month to month and apply pressure upon the manufacturer.

After the advent of "soft steel", the product of the Bessemer converter, we had a revolution, in the turn to open-hearth. A quarter century ago the open-hearth process was so distinctly more expensive than the Bessemer that the buyer's requirements had to be very exacting to induce him to pay the premium for open-hearth. Today open-hearth steel is made at many works more cheaply than Bessemer, a very new condition. Today electrically refined steel costs a much greater advance over common steel than open-hearth did over Bessemer a quarter century ago but in a very few years conditions may be quite different. There are possibilities of the electric refining process being made very cheap, and it may eventually treat converter rather than open-hearth metal.

Apart from such advances as may be made in special treating processes, there is not much likelihood of great reduction in the cost of making steel. There is nothing expensive about making steel except the equipment, which is needed to overcome gravity, handling large masses, and to overcome the resistance of hot steel to reduction in the rolls. The equipment is becoming more expensive year by year, though an offset is the larger tonnages handled, but in respect to equipment in general there can be no sudden or radical change seriously affecting costs.

Most of the development of today in the use of alloy steels and in the employment of heat treatment does not involve new discoveries of importance from month to month or from year to year as much as it does simply the spread of human knowledge. Heat treating methods that are this year being adopted at some factories that work up steel are methods that were practiced at other factories last year, or the

year before and were known to the experts for quite a number of years. Alloy steels now being sold in hundreds or thousands of tons were a few years ago sold in tons or single carloads.

In one branch of steel employment, however, there is new knowledge gained almost from month to month. knowledge

that spreads quite rapidly, and that is in stamping and drawing. Today things are done with sheet steel by many that could not be done by any a year ago, and a year and two years hence things will be done by many that no one can do today, and of course the uses for such formed steel will increase rapidly.

Our Great Export Trade.

The merchandise exports of the United States for two years are shown below, by countries, together with the figures for the preceding year:

Principal countries to which consigned	Year to June 30, 1915.	1914.
United Kingdom	\$911,192,000	\$594,272,000
France	369,397,000	159,819,000
Canada	300,692,000	344,717,000
Italy	184,820,000	74,235,000
Netherlands	143,267,000	112,216,000
Sweden	78,274,000	14,644,000
Cuba	75,530,000	68,884,000
Australia	43,621,000	45,775,600
Japan	41,515,000	51,206,000
Norway	39,075,000	9,007,000
Russia in Europe	37,474,000	30,089,000
Mexico	34,164,000	38,749,000
Argentina	32,550,000	45,179,000
Germany	28,863,000	344,794,000
Brazil	25,630,000	29,964,000
Belgium	20,662,000	61,220,000
China	16,492,000	24,699,000
India British	11,696,000	10,855,000
Austria-Hungary	1,240,000	22,718,000
Other countries.	371,925,000	281,537,000
	\$2,768,589,000	\$2,364,579,000

The character of the trade is shown by the following statement of the principal classes of commodities:

Classes.	1915.	1914.
Wheat and flour	\$482,100,000	\$142,400,000
Raw cotton	376,200,000	610,500,000
Iron and steel mfrs., except firearms	216,425,000	218,057,000
Meat and dairy products	220,100,000	146,200,000
Mineral oils	133,700,000	152,200,000
Leather and mfrs.	120,700,000	57,600,000
Copper pigs, etc	96,200,000	144,900,000
Cotton goods	72,000,000	51,500,000
Auto's and parts	68,100,000	33,200,000

Classes.	—Fiscal Year—	
	1915	1914
Horses	64,000,000	3,400,000
Coal	55,900,000	59,900,000
Chemicals, Medicines, etc.	46,400,000	27,100,000
Tobacco, unmanufactured	44,500,000	54,000,000
Explosives, incl. shells, cartridges, dynamite, gunpowder, etc.	41,500,000	6,300,000
Corn and corn meal	41,300,000	8,300,000
Fruits and nuts	34,900,000	31,900,000
Oil cake and meal	28,900,000	21,700,000
Wool mfrs.	27,300,000	4,800,000
Vegetable oils	25,800,000	16,300,000
Sugar, refined	25,600,000	1,900,000
Boards, deals, etc.	25,100,000	57,600,000
Other wood and mfrs. of	24,800,000	45,600,000
Zinc mfrs.	21,200,000	100,000
Brass mfrs.	20,500,000	7,500,000
Paper and mfrs. of	19,800,000	20,700,000
Electrical goods	19,800,000	25,100,000
Barley	18,200,000	4,300,000
Cars and carriages	17,000,000	18,400,000
Rye	15,100,000	1,600,000
Rubber mfrs.	14,800,000	12,400,000
Fish	12,900,000	12,800,000
Mules	12,700,000	700,000
Fibre mfrs.	12,300,000	12,600,000
Naval stores	11,100,000	19,900,000
Vegetables	10,800,000	6,900,000
Agri. implements	10,300,000	32,000,000
Firearms	9,475,000	3,442,000
All other articles	218,400,000	225,600,000
Total domestic exports	\$2,716,200,000	\$2,299,699,000
Re-exports of foreign goods.	52,400,000	34,800,000
	\$2,768,600,000	\$2,334,499,000

The Silver Situation.

Zimmerman & Forshay, N. Y., issue the following interesting report on the silver market:

"If one would take a casual look over the prevailing price of metals and compare them with the prices of 1914, he would find the only metal neglected from a demand and price standpoint is silver. The price has been subjected to more conditions as to price regulations than any other metal—some for the better and some for the worse.

"The first part of August, 1914, when the London market was closed, and our market was without quotations, the white metal was indeed forgotten, there being a price (though only for an advance on account until assays were finished) of 25c per oz. but active business in neighborhood of 46c and 47c. After a few days our Government came to the rescue by an offer to buy a few million ounces at no higher than the last London price, the figure at which the New York equivalent of 52c per ounce for subsidiary coinage, hoping to somewhat settle the panicky condition of the silver market. London reopened on the 10th with bids for spot silver, carrying the price above 60c. This rise was offset, however, by greatly increased insurance and freight rates and netted the New York seller no more than at reduced figures. This demand lasted but a short time—the various countries in Europe issued currency displacing the silver coins in large quantities and silver for circulation became less and less, even to the French law which prohibited taking more than 50 francs in coin from the country at one time. The arts which consumed the largest percentage of silver became practically at a standstill abroad, business conditions curtailed the consumption for the arts in this country more than half; and in consequence the price of the white metal sank to lower levels.

"From the production standpoint the Mexican situation forestalled the shipping of chemicals and other supplies from the States, necessitating the closing of silver properties one after the other, thereby reducing supplies from that quarter.

"Canada shipped large quantities of crude cobalt ore abroad, principally to Germany,

but when the German ports were closed Canada curtailed its mining operations, thereby reducing the supply from this source—the States having a largely increased demand for copper, lead, zinc, etc., at a greatly enhanced price, found it advantageous to mine. In these different cases silver was but a by-product and accumulated rapidly, it finding its way to New York to the extent of probably 7 or 8 million ounces, which is a fair estimate of the amount of fine metal in storage in New York at the present time. This increase about offsets the loss of supply from Mexico and Canada.

"India eventually came into the market and some few lots were shipped via Trieste. Our Government followed and purchased sufficiently to take away and supply in the West and then transferred the destination of their purchases to the Philadelphia mint, which has aggregated four million ounces during the last month.

"The arts in the States took on new life and a slightly increased demand for the white metal was in evidence. These three factors would naturally have a tendency to harden the price and the trend was slightly upward with a brightening future.

"Then came the most all important factor in the regulation of the fine silver price—the English sterling exchange market. As London regulates the price of silver for the world, the value of the English price per ounce when converted into American currency is naturally reduced by the pound sterling. For example, if silver were 24 pence per ounce, a pound sterling would buy 10 ounces, there being 240 pence to the pound. If pound sterling were at its normal figure, \$486, 10 ounces of silver would be worth \$486, but with sterling at \$4.65 (the present rate) 10 ounces of silver would be that much money or 2440c per ounce less than sterling exchange rates at its normal figure.

"These low levels of exchange have naturally offset the advance in the price until silver is nearly at its low level in American currency, though over an English penny per ounce higher than London. These prices of both sterling and silver have led to many inquiries as to speculation.

possibilities, many people assuming that the war will not be of sufficient duration to have the drop in the sterling market offset by interest charges, feeling that at the termination of hostilities all the exchange values of the gold countries would come into their own.

"This argument opens a strong possibility for speculation in silver, as it is safe to assume that when the hostilities cease the white metal will gradually replace the paper currency now circulating, necessitating large purchases of silver to do the needful in this direction. The arts will demand large supplies and a general advance should follow. As sterling exchange regulates the price of silver and better prices are looked for, this should naturally enhance the American dollars and cents per ounce, as one cent a pound sterling equals 1-10 of a cent per ounce in silver. As the above mentioned demand should materially enhance the commercial price per ounce of silver, the speculator will have the advantage of two means of showing a profit; the interest charges on carrying silver would be greatly reduced by a very material reduction in the cost of freight and insurance prevailing at the present time, it being three times as high as in times of peace."

IMMIGRATION STATISTICS.

Years mentioned refer to fiscal years ended June 30th. Aliens admitted, both immigrant and non-immigrant, and aliens

departed, both emigrant and non-emigrant, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1912	1,017,155	615,292	+401,863
1913	1,427,227	611,924	+815,303
1914	1,403,081	633,805	+769,276
July, 1914 ..	72,015	54,885	+ 17,130

	Admitted.	Departure.	Change.
August	51,231	54,112	— 2,881
September ..	44,624	34,757	+ 9,867
October	45,241	39,410	+ 5,831
November ..	35,325	40,748	— 5,423
December ..	27,458	42,525	— 15,067
January, 1915	20,684	31,556	— 10,872
February ..	18,704	14,188	+ 4,516
March	26,335	15,167	+ 11,168
April	31,765	17,670	+ 14,095
May	32,363	17,624	+ 14,739
June	28,499	21,532	+ 6,967

Year 1915 ..	434,244	384,174	+ 50,070
July	27,097	16,015	+ 11,082

United States citizens arrived and departed, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1913	286,604	347,702	— 61,098
1914	286,586	368,797	— 82,211
1915	239,579	172,412	+ 67,167

Net change in population caused by the movement of both aliens and citizens: 1913, +754,205; 1914, +687,065; 1915, +117,237; July, 1915, +14,994.

RAILROAD EARNINGS.

Railroad earnings per mile of road, of roads having annual operating revenues above \$1,000,000, this being about 229,000 miles or about 90% of the total steam railway mileage; compiled by the Bureau of Railway Economics from duplicates of reports furnished the Interstate Commerce Commission.

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	\$1,183	\$837	\$346	\$1,124	\$785	\$339
August	1,244	856	388	1,175	789	386
September	1,257	854	403	1,182	781	401
October	1,314	891	423	1,169	786	383
November	1,180	884	337	1,023	733	292
December	1,116	821	296	990	728	262
January	1,021	795	226	936	716	220
February	914	746	168	897	678	219
March	1,091	801	290	1,012	720	292
April	1,038	782	256	1,010	722	288
May	1,047	800	247	1,040	732	308
June	1,097	789	308	1,090	730	360

IRON AND STEEL.

THE SITUATION.

Pig iron is being made, in the first week in October, at the rate of about 36,000,000 tons a year, passing the old record rate of February, 1913, by 2,000,000 tons. The steel works are practically all in full operation and all open-hearth departments are working for output, while there are negotiations for the purchase of two idle steel plants that got into financial difficulties in the hard times. Specifications on steel contracts are in excess of current shipments so that deliveries are falling farther behind. New contracting is lighter than ever before in a correspondingly strong market, because the mills do not wish to mortgage their futures to the extent they have in the past. Steel prices are very strong all along the line and show a very distinct advancing tendency, in manufactured steel as well as in the regular rolled products of the mills.

There is a very pronounced scarcity of steel, in the sense of raw steel rather than in the sense of finished steel in general. The majority of the finishing mills, if they were given all the steel they could consume, would be able to produce much more of their respective products than the respective consumers could absorb. Exceptions are to be made of wire products and of merchant steel bars. The demand for these is exceptionally heavy and although the finishing departments are given steel to their capacity, they are falling farther behind in deliveries. Such mills as structural and plates mills, on the other hand, are operating at much less than capacity and are behind in deliveries only to the extent that steel could not be spared for them.

In no department, probably, are specifications on hand equal to as little as one month's production. The usual delivery promise on new specifications for plates and shapes averages about six weeks; on black sheets four weeks, blue annealed sheets four weeks to two months or more, according to gauge, on wire products from four weeks in the case of nails to about three months in the case of barb wire, and in steel bars from six weeks in small sizes to as much as six months on large rounds.

Merchant pig iron production is one-fourth greater than two months ago and one-half greater than at the beginning of

this year, with current demand very light, and several millions tons of idle capacity, none of which could be profitably operated at present prices if sales sufficient to justify the expense of blowing in could be effected.

Export Demand.

The export demand for war purposes is as heavy as at any time it has been. New orders may not be placed in as great tonnages week by week as formerly, but the old business has largely not extended deliveries, so that the obligations week by week to make shipment are piling up. Prices continue to advance. The demand for forging billets, for the manufacture of shells larger than can be made from rolled rounds, has been increasing rapidly in the past few weeks, and this seriously affects the supply of steel for rolling. Some of the smaller steel works, particularly in the east, are finishing less steel than usual, by reason of furnishing such large tonnages of forging billets.

A distinct improvement has occurred in the export demand from neutral countries, a demand that for the first twelve months of the war was below normal for the United States even though the much larger supplies formerly drawn from Germany and Belgium were shut off and the British ability to manufacture export material was somewhat restricted.

The September Movement.

As steel demand increased in August, there was some doubt as to the nature and probable extent of the movement. July and August are normally very dull months, purchases being restricted to immediate necessities and the meeting of requirements expected in the future being left to September and October. The activity in August raised a question whether perhaps buyers were not simply endeavoring to anticipate competitors and buy early, to stop before the rush, whereby September might not show the increase in activity that it usually shows over August. It was felt that it would be necessary to wait September's developments before forming any definite conclusions as to the prospective trend in trade during the next few months.

The fore part of September showed a great improvement, but after the middle

IRON AND STEEL.

The month demand rapidly increased, and the greatest activity of the year, and the greatest pace of improvement, quickly developed. The movement gained strength as it proceeded and in the first week of October predictions came to be common that there would eventually develop a runaway market in steel, meaning a departure from the forms observed in 1905-6, in 1909 and finally in 1912, and bringing about movements comparable in a general way with those that so distinctly characterized the memorable year 1899.

The September movement in pig iron prices was sharp, as it brought our composite up from \$14.555 to \$15.130, or 57½ cents a ton. The price movement, however, seems also to have been decisive, that the limit had been reached for a time at least, since the last week in September and the first week in October developed no further

advances, and the market turned very dull. It was not really very active in September, and in some quarters it has been cynically remarked, as to the major part of the pig iron movement of the past three months that "the furnacemen put up the market on their nerve."

Billets advanced sharply in September, but how much cannot be stated closely since they have become practically unquotable. The producer finds he can secure fancy price for forging billets, when he has but little steel of any description to spare, and does not care to bother with rolling billet consumers since as a rule they are hardly in position to pay even moderate advances.

Finished steel prices advanced an average of 85 cents a net ton, according to our composite finished steel. The advances were practically confined to the second half of

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	— No. 2 fdy —										Ferro-	Fur-
	Bessemer, Basic, No. 2 fdy,			Basic	No. 2X	fdy, Cleve-	Chi-	Birm-	mangan-	nace		
	— Valley —			Phila.	Phila.	Buffalo,	land.	cago.	ingham,	ese.*	coket	
1914—												
Jan. . .	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88	
Feb. . .	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90	
Mar. . .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92	
April . .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90	
May . .	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83	
June . .	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80	
July . .	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75	
Aug. . .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡	1.74	
Sept. . .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70	
Oct. . .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65	
Nov. . .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60	
Dec. . .	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60	
Year . .	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80	1.72	
1915—												
Jan. . .	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55	
Feb. . .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55	
Mar. . .	13.60	12.50	12.75	13.50	14.35	12.74	13.25	13.39	9.42	78.00	1.53	
April . .	13.60	12.50	12.75	13.40	14.05	12.69	13.25	13.50	9.25	78.00	1.55	
May . .	13.60	12.50	12.75	13.25	14.25	13.17	13.25	13.50	9.47	91.00	1.50	
June . .	13.75	12.57	12.70	13.42	14.25	13.08	13.25	13.50	9.50	100.00	1.50	
July . .	13.98	12.87	12.72	13.83	14.28	12.83	13.20	13.50	9.61	100.00	1.67	
Aug. . .	15.12	13.98	13.71	14.83	14.91	13.83	14.08	13.88	10.77	100.00	1.54	
Sept. . .	15.93	14.80	14.50	16.70	15.91	15.43	15.04	14.50	11.22	107.50	1.66	

* Contract price, f.o.b. Baltimore; † Prompt, f.o.b. Connellsville ovens.

‡ Spot shipment; no contract market.

IRON AND STEEL.

the month, and the month closed with a strong advancing tendency, and every evidence that October and following months will show much more striking advances. The governing element in the various finished steel products is not the demand for the particular product, but the demand for steel in general, whereby if steel is not eagerly sought in one finished form it is converted into another. Except for the extreme pressure upon wire and merchant mills the steel industry is sufficiently flexible, has sufficient excess of steel finishing over steel making capacity, to permit such a distribution and thus all finished steel products are likely to advance at much the same rate.

Pig Iron.

The pig iron market is almost at a standstill. The furnaces appear strong in their position, but prospects of a continued advancing market are less certain than a month ago. The steel mills have been operating at capacity and can hardly require

from the merchant furnaces much more iron than they have already been drawing. One element is that the steel works have had some stocks of iron, but the claim that they have been drawing upon stocks up to date, is subject to some question. It is hardly likely stocks would have survived in any volume to this date. Another element is that in a protracted run the steel works furnaces run into a period of relining, but that is for the future. As to the foundries there is no doubt that their consumption is much below normal, even for only fairly prosperous times, and thus there is room for them to expand, but it does not follow that they will. Finally, there is much idle merchant furnace capacity in reserve and the question is largely whether it can be attracted into operation by present prices, or will require the stimulus of still higher prices. That there will be plenty of merchant pig iron, at a price, is practically beyond question. Enough is now known to make it almost certain.

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

	(Average from daily quotations, f.o.b. Pittsburgh.)									Composite
	Shapes, Plates, Bars, Pipe.			Wire Cut		Sheets		Tin	Finished	
				Wire,	Nails.	Nails.	Black.	Galv.	plate.	steel.
1914—										
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	1.5638
April	1.18	1.15	1.15	79¼	1.40	1.60	1.60	1.90	2.89	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	1.5078
June	1.12	1.10	1.12	80	1.32	1.50	1.58	1.81	2.75	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	1.5421
September .	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	1.5236
November .	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	1.5182
1915—										
January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	1.4554
February ..	1.10	1.10	1.10	80½	1.38	1.58	1.55	1.80	3.09	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.80	3.40	1.5098
April	1.20	1.20	1.20	80	1.37	1.57	1.55	1.80	3.40	1.5357
May	1.20	1.17	1.20	79	1.35	1.55	1.55	1.80	3.11	1.5381
June	1.20	1.15	1.20	79	1.35	1.55	1.55	1.76	3.00	1.5312
July	1.25	1.22	1.27	79	1.38	1.58	1.55	1.74	4.65	1.5602
August	1.30	1.26	1.30	79	1.43	1.61	1.55	1.85	4.10	1.6054
September .	1.33	1.33	1.35	79	1.54	1.69	1.58	1.91	3.68	1.6506

IRON AND STEEL.

able that there should be a scarcity of pig iron similar to the present scarcity of steel. With sharply advancing steel prices, however, there must be some sentimental influences upon pig iron, and there are also higher costs for raw material. Connellsville furnace coke has sold on contract for the first half or all of 1916 at \$2.25 to \$2.35, while Lake Superior ore in 1916 is expected to be up to 50 to 75 cents.

Steel.

All contracts for steel products are being specified to the maximum as they stand at much below currently quoted prices. As usual the steel mills oversold themselves. They did not expect material to be taken as it is being taken. Instead of selling with equal freedom for 1916 they are now very reserved and are disposed to undersell for first quarter, to enable them to catch up to an extent. On an average, the steel

mills are likely to reach January 1st with specifications on books for about three months of actual rolling. Practically all quotations involve advances for first quarter over prices ruling for earlier shipment, not prompt shipment, but shipment at mill convenience. In the case of bars premiums are already offered for quick shipment but the mills are filled and could only accept the business by deferring shipment on specifications already in hand.

The Future.

It was the war demand made this steel market, but not merely through its tonnage; the placing of large war orders incited domestic buyers to specify more freely. In recent weeks it has caused the railroads to buy for 1916 in fear that otherwise they could not secure desired deliveries. Rails have been bought to the extent of 400,000 or 500,000 tons. In the past rails have

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909:

Quarter.	1915.	1914.	1913.
1st	\$12,457,809	\$17,994,382	\$34,426,802
2nd	27,950,055	20,457,596	41,219,813
3rd	22,276,002	38,450,400	
4th	10,935,635	23,084,330	
Year	71,663,615	127,181,345	
	1912.	1911.	1910
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	50,063,513	29,522,525	37,365,187
4th	35,181,922	23,155,018	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,612,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643
1915..	4,255,749	4,678,196		

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, our own estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship-ments.	Book-ings.	Dif-ference.	Dif-ference.
	%	%	%	Tons.
Dec. 1913 ...	50	40	-10	-114,239
January 1914 ..	55	83	+28	+331,572
February	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	+ 5	+ 54,742
September ..	62	74	-38	-125,664
October ...	55	28	-27	-326,570
November ..	45	32	-13	-136,505
December ..	38	82	+44	+512,051
January 1915 ..	44	81	+37	+411,928
February ...	57	66	+ 9	+ 96,800
March	67	60	- 7	- 89,622
April	71	63	- 8	- 93,505
May	76	85	+ 9	+102,354
June ...	79	113	+34	+413,598
July	83	104	+21	+250,344
August	87	85	- 2	- 20,085

IRON AND STEEL.

been bought thus early, or earlier, but it was when the demand was exceptionally heavy. Now the roads are individually taking rather small tonnages but they are buying early nevertheless, for the rail mills are largely filled with orders for large rounds.

There is no prospect of the war demand decreasing for many months. Even should a movement towards peace be started the manufacture of munitions would probably continue until peace was absolutely assured. As to the domestic demand that was incited by the war, it was to that extent artificial, but actual consumption has undoubtedly been increasing and there are not the stocks of steel in buyers' hands that there were in previous movements, when low priced contracts were being specified against in a strong market. The war, furthermore, is making the country month by month more prosperous and in this respect it is giving a healthy stimulus to steel consumption.

It remains the fact that as long as the domestic industries consuming steel are not busy. They may be doing more than they were, but the consumption of steel in the United States is in many ways much smaller than it has been in truly prosperous times in the past, making due allowance of course for the growth of the country meanwhile. Thus, when the steel mills are already extremely busy it is patent that there are possibilities of increases in demand that would absolutely swamp the steel industry and cause prices not simply to advance, but to soar, to produce a "runaway market" like that of 1899, and a parallel to which we have not since seen. The steel mills, it may be remarked, are not as much averse to a runaway as they have been. The hard times through which they have passed dispose them to make their own average, but to sell at low prices with high prices, when the market

has become a runaway market, and steady demand. The latter course obtained in 1899 and 1907 after the last buyers had orders filled and

TIN PLATE MOVEMENT.

United States imports and exports of tin plate in gross tons have been as follows, the imports of course including those for drawback purposes.

	Imports.	Exports.
1900	56,983	12,082
1901	57,775	10,296
1902	58,400	11,878
1903	62,503	9,727
1904	66,640	12,479
1905	14,008	61,465
1906	2,056	81,694
1907	29,680	57,842
1908	15,441	59,549
January, 1915	1,698	5,914
February	265	5,864
March	53	10,500
April	44	9,084
May	24	7,248
June	75	8,024
July	7	16,845
.....
Seven months	2,139	60,855

From July to July the movement has been as follows: April, 1902, 11,000 gross tons.

British tin plate exports have been as follows, in gross tons.

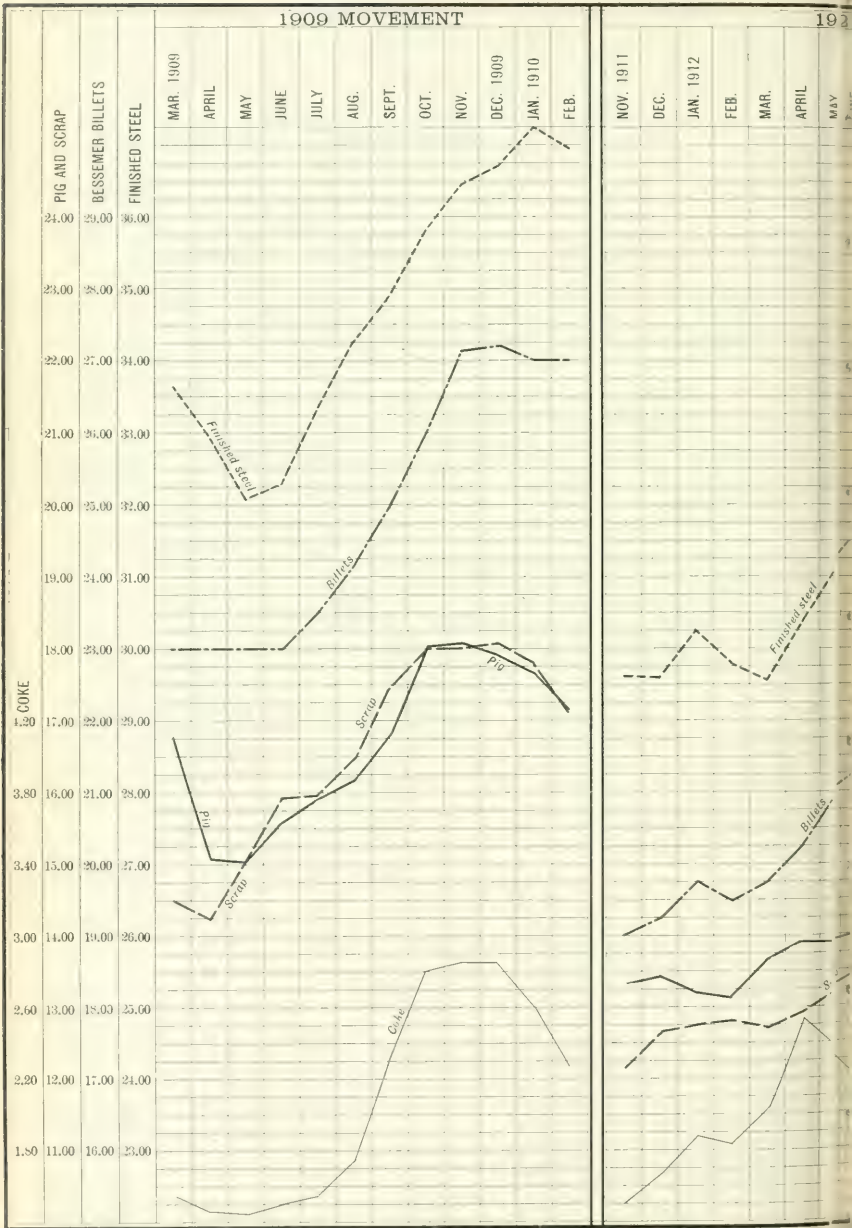
1902	481,123
1903	494,921
1904	465,496
January, 1915	29,246
February	25,101
March	36,479
April	49,145
May	37,747
June	37,086
July	37,728
August	37,729
Eight months	290,771

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. Sept. 30
	High.	Low.	High.	Low.	High.	Low.	
Bessemer, valley	17.25	14.25	14.25	13.75	16.00	13.60	16.00
Basic, valley	16.50	12.50	13.25	12.50	15.00	12.50	15.00
No. 2 foundry, valley	17.50	13.00	13.25	12.75	14.50	12.50	14.50
No. 2X fdy. Philadelphia. .	18.50	14.50	15.00	14.20	16.25	14.00	16.25
No. 2 foundry, Cleveland .	17.75	13.50	14.25	13.25	15.25	13.00	15.25
No. 2X foundry, Buffalo..	18.00	13.00	13.75	12.25	15.50	11.75	15.50
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	14.25	13.00	14.25
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	11.50	9.25	11.50
Scrap Iron and Steel.							
Melting steel, Pittsburgh .	15.00	10.75	12.00	9.75	14.00	11.00	14.00
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	12.25	8.75	12.00
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	13.00	10.75	13.00
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	13.00	11.00	13.00
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	15.00	9.50	15.00
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.45	1.20	1.45
Iron bars, Philadelphia	1.67½	1.22½	1.27½	1.12½	1.46	1.12½	1.46
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.40	1.10	1.40
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.35	1.10	1.35
Structural shapes, Pitts. .	1.50	1.20	1.25	1.05	1.40	1.10	1.40
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12½	1.25	1.12½	1.25
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	1.95	1.70	1.95
Galv. sheets, Pittsburgh ..	3.50	2.80	3.00	2.75	5.00	2.65	3.50
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.20	3.10	3.10
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.60	1.55	1.60
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.75	1.50	1.75
Steel pipe, Pittsburgh	79%	80%	79½%	81%	79%	81%	79%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.75	2.00	1.60	1.75	1.50	1.75
Prompt foundry	4.50	2.40	2.50	2.00	2.30	2.00	2.30
Metals—New York.							
Straits tin	51.00	36.75	65.00	28.50	57.00	32.25	32.50
Lake copper	17.75	14.50	15.50	11.30	20.62½	13.00	18.00
Electrolytic copper	17.65	14.12½	14.87½	11.10	20.50	12.80	18.00
Casting copper	17.45	13.87½	14.65	11.00	19.62½	12.70	17.25
Sheet copper	22.00	19.75	20.25	16.50	25.00	18.75	23.00
Lead (Trust price)	4.75	4.00	4.15	3.50	7.00	3.70	4.50
Spelter	7.35	5.10	6.20	4.75	27.50	5.70	14.50
Chinese & Jap. antimony. .	9.00	6.00	18.00	5.30	38.00	13.00	28.31¼
Aluminum, 98-99%	27.12½	18.50	21.50	17.57½	50.00	18.75	48.75
Silver	63½	56½	59¼	47½	51½	46¼	49½
St. Louis.							
Lead	4.72½	3.85	4.10	3.35	7.50	4.10	4.47½
Spelter	7.17½	4.35	6.00	4.60	27.00	5.55	14.12½
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	33.00	9.00	16.00
London.							
Standard tin, prompts	232	166½	188	132	190	148½	151¼
Standard copper, prompts ..	77¼	61¾	66¼	49	86¼	57½	72
Lead	21½	15½	24	17½	28½	18¼	23½
Spelter	26¼	20¼	33	21¼	110	28½	65
Silver	293d	25½d	27½d	22½d	24½d	22½d	23¾d

Three Iron and Steel P.

Supplement to The Steel and Iron



Prompt Connellsville furnace coke per net ton at ovens

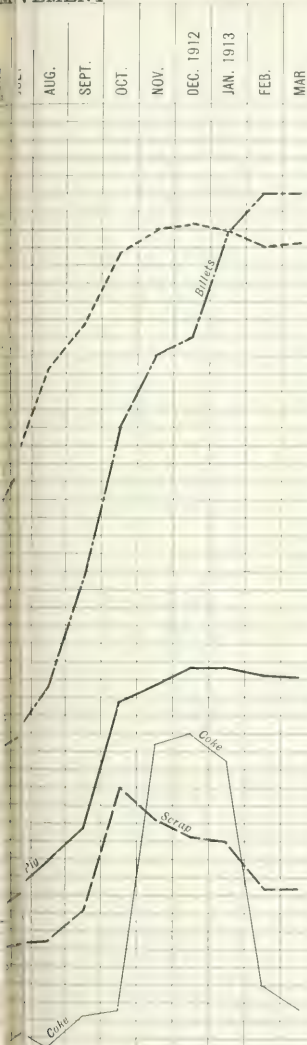
Bessemer steel billets Pittsburgh

Basic pig iron

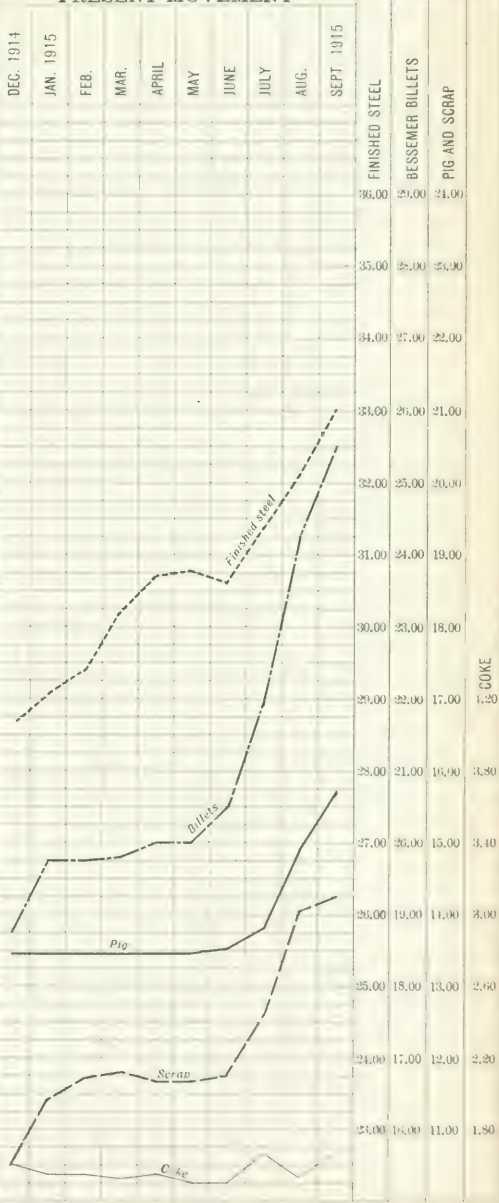
Movements Compared

Mal Digest, October, 1915.

MOVEMENT



PRESENT MOVEMENT



Pittsburgh ————— Heavy melting steel scrap delivered Pittsburgh
 Composite finished steel per net ton - - - - -

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. Sept. 30.
	High.	Low.	High.	Low.	High.	Low.	
Atchison, Top. & Santa Fe...	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100 $\frac{3}{8}$	89 $\frac{1}{2}$	105 $\frac{1}{2}$	92 $\frac{1}{2}$	103 $\frac{3}{8}$
Atch. Top. & Santa Fe, pfd.	102 $\frac{1}{4}$	96	101 $\frac{1}{4}$	96 $\frac{1}{2}$	101 $\frac{1}{2}$	96	101 $\frac{1}{4}$
Baltimore & Ohio	106 $\frac{3}{8}$	90 $\frac{1}{2}$	98 $\frac{5}{8}$	67	89 $\frac{3}{4}$	63 $\frac{3}{4}$	88 $\frac{3}{8}$
Canadian Pacific	266 $\frac{3}{4}$	204	220 $\frac{1}{2}$	153	174	138	159 $\frac{3}{4}$
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	40	51 $\frac{7}{8}$	35 $\frac{5}{8}$	50 $\frac{3}{8}$
Chicago, Mil. & St. Paul	116 $\frac{1}{4}$	96 $\frac{3}{4}$	107 $\frac{7}{8}$	84 $\frac{3}{4}$	98 $\frac{1}{4}$	77 $\frac{3}{4}$	87
Erie R. R.	32 $\frac{1}{2}$	20 $\frac{1}{4}$	32 $\frac{1}{2}$	20 $\frac{1}{8}$	33 $\frac{3}{8}$	19 $\frac{7}{8}$	32 $\frac{1}{2}$
Great Northern, pfd.	132 $\frac{5}{8}$	115 $\frac{1}{2}$	134 $\frac{1}{4}$	111 $\frac{5}{8}$	122 $\frac{3}{4}$	112 $\frac{1}{4}$	120
Lehigh Valley	168 $\frac{3}{8}$	141 $\frac{1}{4}$	156 $\frac{1}{4}$	118	148	129 $\frac{1}{4}$	146 $\frac{1}{2}$
Louisville & Nashville	142 $\frac{1}{4}$	126 $\frac{1}{4}$	141 $\frac{7}{8}$	125	125 $\frac{1}{2}$	104 $\frac{1}{2}$	122 $\frac{1}{2}$
Missouri, Kansas & Texas ..	29 $\frac{1}{8}$	18 $\frac{1}{8}$	24	8 $\frac{3}{8}$	15 $\frac{1}{4}$	4	4 $\frac{7}{8}$
Missouri Pacific	45 $\frac{5}{8}$	21 $\frac{1}{4}$	30	7	18 $\frac{1}{4}$	13 $\frac{1}{4}$	37 $\frac{3}{8}$
New York Central	109 $\frac{3}{4}$	90 $\frac{3}{8}$	96 $\frac{5}{8}$	77	98 $\frac{1}{2}$	81 $\frac{1}{2}$	96 $\frac{3}{4}$
N. Y., N. H. & Hartford	129 $\frac{7}{8}$	65 $\frac{3}{8}$	78	49 $\frac{5}{8}$	71 $\frac{1}{4}$	43	69
Northern Pacific	122 $\frac{5}{8}$	101 $\frac{3}{4}$	118 $\frac{1}{2}$	97	112 $\frac{5}{8}$	99 $\frac{1}{8}$	110 $\frac{5}{8}$
Pennsylvania R. R.	123 $\frac{3}{4}$	106	115 $\frac{1}{2}$	102 $\frac{1}{2}$	114 $\frac{7}{8}$	103 $\frac{5}{8}$	113
Reading	171 $\frac{1}{4}$	151 $\frac{1}{8}$	172 $\frac{1}{4}$	37	155 $\frac{1}{8}$	138 $\frac{3}{4}$	153 $\frac{1}{4}$
Rock Island	24 $\frac{7}{8}$	11 $\frac{1}{8}$	16 $\frac{7}{8}$	8 $\frac{1}{8}$	11 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{4}$
Southern Pacific	110	83	99 $\frac{1}{2}$	81	95	81 $\frac{1}{4}$	93 $\frac{3}{8}$
Union Pacific	162 $\frac{3}{4}$	137 $\frac{3}{4}$	164 $\frac{3}{8}$	112	134 $\frac{7}{8}$	115 $\frac{1}{4}$	132 $\frac{1}{4}$
Wabash	6	2	4 $\frac{7}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$
Industrials.							
Am. Beet Sugar	50 $\frac{1}{2}$	19 $\frac{3}{4}$	33 $\frac{1}{2}$	19	68 $\frac{7}{8}$	33 $\frac{1}{2}$	66 $\frac{1}{2}$
American Can	46 $\frac{7}{8}$	21	35 $\frac{7}{8}$	19 $\frac{1}{4}$	66 $\frac{1}{2}$	25	64 $\frac{1}{4}$
American Can, pfd.	129 $\frac{1}{2}$	80 $\frac{1}{2}$	96	80	108 $\frac{3}{4}$	89	108 $\frac{3}{4}$
Am. Car & Foundry	56 $\frac{3}{8}$	36 $\frac{1}{2}$	53 $\frac{1}{2}$	42 $\frac{1}{4}$	85	40	82
Am. Cotton Oil	57 $\frac{3}{8}$	33 $\frac{1}{2}$	46 $\frac{1}{2}$	32	57 $\frac{3}{4}$	39	53 $\frac{1}{4}$
Am. Locomotive	44 $\frac{1}{2}$	27	37 $\frac{1}{4}$	29 $\frac{1}{4}$	72 $\frac{3}{4}$	19	69 $\frac{1}{4}$
Am. Smelting & Refining	74 $\frac{3}{4}$	58 $\frac{1}{2}$	71 $\frac{1}{4}$	50 $\frac{1}{4}$	88 $\frac{3}{8}$	56	85 $\frac{1}{2}$
Brooklyn Rapid Transit	92 $\frac{1}{4}$	83 $\frac{1}{4}$	94 $\frac{1}{4}$	79	93	83 $\frac{1}{4}$	84
Chino Copper	47 $\frac{3}{8}$	30 $\frac{3}{8}$	44	31 $\frac{3}{8}$	49 $\frac{3}{4}$	32 $\frac{3}{4}$	47 $\frac{1}{2}$
Colo. Fuel & Iron Co.	41 $\frac{1}{2}$	24 $\frac{1}{2}$	34 $\frac{1}{2}$	20 $\frac{1}{2}$	66 $\frac{1}{2}$	21 $\frac{1}{4}$	61
Consolidated Gas	142 $\frac{3}{8}$	125 $\frac{1}{8}$	139 $\frac{1}{2}$	112 $\frac{1}{2}$	131 $\frac{3}{4}$	113 $\frac{3}{4}$	129 $\frac{3}{4}$
General Electric	187	129 $\frac{3}{4}$	150 $\frac{1}{2}$	137 $\frac{1}{2}$	178 $\frac{1}{2}$	138	174 $\frac{1}{2}$
Interborough-Metropolitan ..	19 $\frac{5}{8}$	12 $\frac{3}{8}$	16 $\frac{5}{8}$	10 $\frac{1}{4}$	24 $\frac{1}{4}$	10 $\frac{5}{8}$	20
International Harvester	111 $\frac{1}{2}$	96	113 $\frac{1}{2}$	82	114	90	106
Lackawanna Steel	49 $\frac{7}{8}$	29 $\frac{7}{8}$	40	26 $\frac{1}{2}$	94 $\frac{1}{4}$	28	89
National Lead	56 $\frac{1}{4}$	43	52	40	70 $\frac{1}{4}$	44	66 $\frac{5}{8}$
Ray Consolidated Copper	22	15	22 $\frac{1}{2}$	15	26 $\frac{7}{8}$	15 $\frac{1}{4}$	25
Republic Iron & Steel	28 $\frac{7}{8}$	17	27	18	55 $\frac{5}{8}$	19	53 $\frac{1}{2}$
Republic Iron & Steel, pfd...	92 $\frac{1}{4}$	72	91 $\frac{1}{4}$	75	103 $\frac{3}{4}$	72	102 $\frac{3}{4}$
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19 $\frac{1}{2}$	65	22	62 $\frac{7}{8}$
Texas Co.	132 $\frac{1}{2}$	89	149 $\frac{7}{8}$	112	173 $\frac{5}{8}$	120	167 $\frac{1}{2}$
U. S. Rubber	69 $\frac{1}{2}$	51	63	44 $\frac{1}{2}$	74 $\frac{1}{2}$	44	53 $\frac{1}{2}$
U. S. Steel Corporation	69 $\frac{1}{8}$	49 $\frac{7}{8}$	67 $\frac{1}{4}$	48	81 $\frac{1}{4}$	38	79 $\frac{1}{8}$
U. S. Steel Corporation, pfd...	110 $\frac{1}{4}$	102 $\frac{1}{2}$	112 $\frac{1}{4}$	103 $\frac{1}{2}$	115	102	114 $\frac{1}{2}$
Utah Copper	60 $\frac{7}{8}$	39 $\frac{5}{8}$	59 $\frac{3}{8}$	45 $\frac{3}{8}$	73	48 $\frac{1}{2}$	70
Van-Carolina Chem.	43 $\frac{1}{8}$	22	34 $\frac{7}{8}$	17	43 $\frac{3}{8}$	15	39 $\frac{1}{2}$
Western Union Telegraph ...	75 $\frac{1}{8}$	54 $\frac{1}{8}$	66 $\frac{7}{8}$	53 $\frac{3}{8}$	77 $\frac{3}{4}$	57	77

COMPOSITE STEEL.

Computation for October 1, 1915:

Pounds.	Group.	Price.	Extension.
2½	Bars	1.35	3.375
1½	Plates	1.35	2.025
1½	Shapes	1.40	2.100
1½	Pipe (34-3)	2.10	3.150
1-2	Wire nails	1.75	2.350
1	Sheets (28 bl.)	1.95	1.950
½	Tin plates	3.10	1.550
10 pounds			16.700
One pound		1.6700	

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	1.5381
June	1.6817	1.5794	1.7719	1.4750	1.5312
July	1.6701	1.6188	1.7600	1.4805	1.5692
Aug.	1.6394	1.6784	1.7400	1.5421	1.6059
Sept.	1.6090	1.7086	1.7093	1.5632	1.6506
Oct.	1.5461	1.7588	1.6779	1.5236	.....
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet. Pitts.	No. 1 R. R. Wrought. Pitts.	No. 1 Cast. Steel. Pitts.	No. 1 Heavy Melt'g. Phila. Ch'go.
1913—					
Nov.	11.40	6.75	11.85	12.00	10.30 10.25
Dec.	11.00	6.40	11.65	11.60	9.75 9.25
Year	13.07	9.33	13.91	13.29	12.12 11.21
1914—					
Jan.	11.25	7.00	12.20	12.00	10.50 9.25
Feb.	12.00	8.25	12.80	12.50	11.50 10.70
Mar.	12.25	9.00	12.85	12.40	11.50 10.50
Apr.	12.25	9.00	12.00	12.15	10.80 10.00
May	11.75	9.10	11.75	12.25	10.60 10.00
June	11.75	9.10	11.75	12.25	10.50 9.80
July	11.75	8.50	11.75	11.50	10.60 9.75
Aug.	11.50	8.50	11.50	11.25	10.75 9.75
Sept.	11.25	8.70	10.50	11.25	10.75 9.25
Oct.	10.75	8.50	10.25	11.25	10.00 9.00
Nov.	10.10	8.10	10.25	10.75	9.25 8.25
Dec.	10.50	8.50	10.50	11.00	9.65 8.40
Year	11.42	8.52	11.51	11.71	10.53 9.55
1915—					
Jan.	11.40	9.20	10.75	11.25	10.30 9.00
Feb.	11.70	9.25	10.75	11.35	10.70 9.20
Mar.	11.80	9.37	10.75	11.50	10.85 9.25
Apr.	11.65	9.37	10.75	11.85	11.10 9.13
May	11.65	9.37	10.75	11.85	11.25 9.50
June	11.75	9.37	10.75	11.85	11.25 9.75
July	12.62	9.60	11.00	12.00	11.85 10.90
Aug.	14.05	11.40	12.25	12.85	13.70 11.85
Sept.	14.25	11.90	13.15	13.10	14.70 12.15

COMPOSITE PIG IRON.

Computation for October 1, 1915:

One ton Bessemer, valley	\$16.00
Two tons basic, valley (15.00)	30.00
One ton No. 2 foundry, valley	14.50
One ton No. 2 foundry, Philadelphia	16.25
One ton No. 2 foundry, Buffalo	15.75
One ton No. 2 foundry, Cleveland	15.25
One ton No. 2 foundry, Chicago	14.75
Two tons No. 2 Southern foundry, Cincinnati (14.40)	28.80
Total, ten tons	151.30
One ton	15.130

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	13.026
June	14.032	14.005	14.968	13.606	13.047
July	13.926	14.288	14.578	13.520	13.125
Aug.	13.874	14.669	14.565	13.516	14.082
Sept.	13.819	15.386	14.692	13.503	14.895
Oct.	13.692	16.706	14.737	13.267	.....
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv. — Phila. Pitts.	— Ch'go. Pitts.
1914—					
Feb.	21.00	22.00	26.00	1.28	1.35 1.14
Mar.	21.00	22.00	26.00	1.28	1.35 1.15
Apr.	20.75	21.75	25.50	1.23	1.31 1.14
May	20.00	21.00	26.00	1.23	1.29 1.10
June	19.50	20.35	25.00	1.23	1.25 1.08
July	19.50	20.00	25.00	1.19	1.25 1.06
Aug.	20.17	21.08	25.25	1.18	1.25 1.07
Sept.	20.75	21.75	26.00	1.18	1.20 1.07
Oct.	20.00	20.70	26.00	1.14	1.20 1.01
Nov.	19.25	19.75	25.00	1.13	1.20 .96
Dec.	18.75	19.25	24.40	1.12	1.20 .91
Year	20.06	20.82	25.50	1.20	1.27 1.07
1915—					
Jan.	19.25	19.75	24.80	1.12	1.20 .97
Feb.	19.25	19.75	25.00	1.12	1.20 1.03
Mar.	19.30	19.80	25.00	1.13	1.20 1.10
Apr.	19.50	20.00	25.00	1.18	1.20 1.14
May	19.50	20.00	25.00	1.18	1.20 1.15
June	20.00†	20.50†	25.00	1.20	1.20 1.17
July	21.40†	21.90†	25.75	1.32	1.20 1.20
Aug.	23.50†	24.00†	27.00	1.43	1.25 1.22
Sept.	25.50†	26.00†	29.75	1.49	1.35 1.30

* Premiums for Bessemer.

† Premiums for open-hearth.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our composite finished steel. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed:

1914—

Sept 16	Tin plate	3.60	to 3.30
" 26	Sheets	2.00	to 1.95
" 29	Bars	1.20	to 1.15
" 29	plates	1.20	to 1.15
" 30	Tin plate	3.30	to 3.25
Oct. 5	Sheets	1.95	to 2.00
" 7	Shapes	1.20	to 1.15
" 22	Sheets	2.00	to 1.90
" 27	Plates	1.15	to 1.10
Nov. 2	Pipe (extra 2½% removed)		
		80% to	81%
" 5	Bars	1.15	to 1.10
" 5	Shapes	1.15	to 1.10
" 18	Sheets	1.90	to 1.85
" 24	Plates	1.10	to 1.05
" 24	Wire nails	1.60	to 1.55
Dec. 1	Bars	1.10	to 1.05
" 1	Shapes	1.10	to 1.05
" 3	Tin plate	3.25	to 3.20
" 4	Wire nails	1.55	to 1.50
" 28	Tin plate	3.20	to 3.10
" 30	Sheets	1.85	to 1.80

1915—

Jan. 1	Bars	1.05	to 1.10
" 1	Plates	1.05	to 1.10
" 1	Shapes	1.05	to 1.10
" 11	Wire nails	1.50	to 1.55
Feb. 11	Wire nails	1.55	to 1.60
" 11	Pipe	81% to	80%
" 15	Galv. sheets	3.00	to 3.25
" 25	Galv. sheets	3.25	to 3.40
Mar. 1	Bars	1.10	to 1.15
" 1	Plates	1.10	to 1.15
" 1	Shapes	1.10	to 1.15
" 1	Wire galvanizing differential	49c	to 50c
Mar. 15	Shafting (New list, f.o.b. Pittsburgh instead delivered)	68% to	70%
" 17	Wire galvanizing differential	50c	to 60c
April 1	Boiler tubes		75%
" 1	Bars	1.15	to 1.20
" 1	Plates	1.15	to 1.20
" 1	Shapes	1.15	to 1.20
" 14	Wire nails	1.60	to 1.55

1915—

May 1	Steel pipe	50% to	79%
" 1	Boiler tubes	75% to	74%
" 1	Tin plate	3.20	to 3.10
" 12	Plates	1.20	to 1.15
" 17	Galvanized sheets	3.40	to 3.60
" 24	Galvanized sheets	3.60	to 3.75
June 1	Galvanized pipe	62½ to	63½
" 1	Galvanized sheets	3.75	to 4.25
" 1	Wire galvanizing differential	60c	to 80c
" 1	Boiler tubes	75% to	74%
" 8	Sheets	1.80	to 1.75
" 9	Galv. sheets	4.25	to 5.00
" 15	Boiler tubes	74% to	73%
July 1	Bars	1.20	to 1.25
" 1	Plates	1.15	to 1.20
" 1	Shapes	1.20	to 1.25
" 2	Sheets	1.75	to 1.70
" 6	Wire nails	1.55	to 1.60
" 7	Sheets	1.70	to 1.75
" 11	Galvanized sheets	5.00	to 4.50
" 16	Boiler tubes	73% to	72%
" 20	Plates	1.20	to 1.25
" 20	Wire nails	1.60	to 1.55
" 21	Bars	1.25	to 1.30
" 28	Galvanized sheets	4.50	to 4.25
" 29	Wire nails	1.55	to 1.60
Aug. 3	Shapes	1.25	to 1.30
" 4	Sheets	1.75	to 1.80
" 6	Black sheets	1.80	to 1.85
" 19	Blue ann. sheets	1.85	to 1.40
" 23	Wire galvanizing	60c	to 70c
" 24	Wire	1.40	to 1.50
" 24	Wire nails	1.60	to 1.65
" 24	Wire galvanizing	80c	to 60c
" 25	Black sheets	1.85	to 1.90
" 27	Plates	1.25	to 1.30
" 31	Bars	1.30	to 1.35
" 31	Blue ann. sheets	1.40	to 1.50
Sept. 15	Plates	1.30	to 1.35
" 15	Shapes	1.30	to 1.35
" 20	Wire nails	1.65	to 1.75
" 28	Sheets	1.90	to 1.95
" 29	Shapes	1.35	to 1.40
Oct. 1	Boiler tubes	72% to	71%
" 6	Bars	1.35	to 1.40
" 6	Sheets	1.95	to 2.00
" 7	Blue ann. sheets	1.55	to 1.60

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,233,503	22,591,991	24,474,799	27,221,210	20,551,137	20,985,505
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	25,302,649
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	26,536,612
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	31,757,103
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	35,891,575
August	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773	
September ...	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November ...	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December ...	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613	
Totals ...	\$201,271,903	\$249,656,411	\$289,128,420	\$293,934,160	\$199,861,684	\$174,970,645

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	174,313
April	93,285	100,91	117,921	228,149	267,313	259,689	161,952	223,240
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	263,649
June	69,770	114,724	120,601	174,247	273,188	243,108	144,539	355,402
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	378,897
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	
Totals	961,242	1,240,567	1,540,895	2,187,724	2,948,466	2,730,681	1,549,503	1,679,658

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. ..	154,118	175,463	101,804	75,286
Feb. ..	129,693	188,734	112,574	78,773
Mar. ..	157,469	164,865	68,549	88,402
April .	178,502	174,162	111,812	91,561
May ..	194,482	191,860	125,659	98,974
June ..	180,122	241,069	188,647	118,575
July ..	185,677	272,017	141,838	119,468
Aug. ..	178,828	213,139	135,693	
Sept. ..	180,577	295,424	109,176	
Oct. ..	202,125	274,418	114,341	
Nov. .	163,017	179,727	90,222	
Dec. ..	199,982	223,892	51,053	
Totals	2,104,576	2,594,770	1,351,368	671,039

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan.	33,071	20,008	21,740	17,776	10,568
Feb.	20,812	11,622	25,505	14,757	7,506
Mar.	23,533	15,466	27,467	27,829	8,025
April	22,392	12,481	25,742	30,585	16,565
May	23,347	15,949	28,728	28,173	28,916
June	29,399	21,407	36,597	23,076	32,200
July	15,782	17,882	36,694	25,282	20,858
Aug.	10,944	20,571	18,740	28,768	
Sept.	14,039	18,740	19,941	38,420	
Oct.	21,035	25,559	20,840	22,754	
Nov.	13,880	24,154	25,809	24,165	
Dec.	19,665	21,231	26,454	9,493	
Total	256,903	225,072	317,260	290,394	124,638

CAR BUYING.

Freight cars ordered:

First half 1913	114,000	
Second half 1913	33,000	
Year 1913	147,000	
March	8,000	
April	10,000	
May	10,000	
June	15,000	
July	7,000	
August	3,100	
September	95	
October	1,725	
November	550	
December	1,150	
Year, 1914	80,000	
January 1915	3,300	
February	4,255	
March	1,287	
April	3,000	
May	20,210	
June	29,864	
Six months	61,915	
July	5,675	
August	4,260	
September	1,960	

BRITISH EXPORTS.

According to the Board of Trade returns, in tons of 2,240 pounds:

1914—	Pig iron.	Rails.	Tin Plate.	Total*
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	366,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct. ..	47,188	37,005	26,950	263,834
Nov. ...	49,666	16,181	30,942	240,617
Dec. ..	31,705	16,315	30,254	212,667
Year ..	90,405	435,440	435,497	3,977,468
1915—				
Jan. ...	21,138	24,411	29,216	230,204
Feb. ...	21,934	14,877	25,101	198,804
Mar. ...	20,172	17,572	36,170	239,342
Apr. ...	35,209	21,602	40,135	264,244
May ...	29,342	21,776	33,727	267,524
June ...	39,127	23,728	33,986	272,195
July ...	78,370	33,224	39,528	351,984
Aug. ...	73,283	32,062	22,532	295,260

* Includes scrap, pig iron, rolled iron and steel cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

OUR FOREIGN TRADE.

Value of merchandise imports and exports, and favorable trade balance, calendar years.

	Imports.	Exports.	Balance.
1900	\$829,149,714	\$1,477,946,113	\$648,796,399
1901	880,419,910	1,465,375,860	584,955,950
1902	989,316,870	1,360,685,933	391,369,063
1903	995,494,327	1,484,753,083	489,258,756
1904	1,035,909,190	1,451,318,740	415,409,550
1905	1,179,144,550	1,626,990,795	447,846,245
1906	1,320,501,572	1,798,243,434	477,741,862
1907	1,423,169,820	1,923,426,205	500,256,385
1908	1,116,374,087	1,752,835,447	636,461,360
1909	1,475,520,724	1,728,198,645	252,677,921
1910	1,562,904,151	1,866,258,904	303,354,753
1911	1,532,359,160	2,092,526,746	560,167,586
1912	1,818,133,355	2,399,217,993	581,084,638
1913	1,792,596,480	*2,484,018,292	*691,421,812
1914	*1,789,276,001	2,113,624,059	324,348,049

1913—

Mar.	155,445,498	187,426,711	31,981,213
April	146,194,461	199,813,438	53,618,977
May	133,723,713	194,607,422	60,883,709
June	131,245,877	163,404,916	32,159,039
July	139,061,770	160,990,778	21,929,008
Aug.	137,651,553	187,909,020	50,257,467
Sept.	171,084,843	218,240,001	47,155,158
Oct.	132,949,302	271,861,464	138,912,162
Nov.	148,236,536	245,539,042	97,302,506
Dec.	*184,025,571	233,195,628	49,170,057

1914—

Jan.	154,742,923	204,066,603	49,323,680
Feb.	148,044,776	178,920,145	25,875,369
Mar.	182,555,304	187,400,334	4,845,030
April	173,762,114	162,552,570	11,209,544
May	164,281,515	161,732,619	2,548,896
June	157,529,450	157,072,044	457,406
July	150,677,291	151,138,947	45,538,344
Aug.	129,767,890	110,367,494	19,400,396
Sept.	139,710,611	156,052,333	16,341,722
Oct.	138,080,520	194,711,170	56,630,650
Nov.	126,467,062	205,878,333	79,411,271
Dec.	114,656,545	245,632,558	130,976,013

1915—

Jan.	122,265,267	267,801,370	145,536,103
Feb.	125,123,391	*298,727,757	*173,604,366
Mar.	158,022,016	296,501,852	138,479,836
Apr.	160,576,106	294,746,117	134,170,011
May	142,281,851	273,769,093	131,487,242
June	157,695,140	268,547,416	110,852,276
July	143,099,620	267,978,990	124,879,370
Aug.	141,729,638	261,915,721	120,246,083

* High record.

† Balance unfavorable.

STEEL MAKING PIG IRON AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and over.

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. ...	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. ...	14.225	13.60	13.059	12.50
Mar. ...	14.1667	13.60	13.041	12.50
April ...	14.00	13.60	13.00	12.50
May	14.00	13.659	13.00	12.65
June ...	14.00	13.75	13.00	12.724
July ...	14.00	13.991	13.00	12.959
Aug. ...	14.00	15.064	13.00	14.364
Sept. ...	14.00	15.906	13.00	15.00
Oct. ...	13.9375	.....	12.85	.....
Nov. ...	13.6375	.....	12.477	.....
Dec. ...	13.75	.....	12.50	.....
Year ..	13.9793	.....	12.854	.....

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February.	1.4831	1.1590	1.024
March-April	1.5430	1.176	1.087
May-June	1.5272	1.1257	*1.10
July-August	1.5029	1.0928	*1.15
September-October	1.3931	1.0847	
November-December	1.2030	1.037	
Year's average	1.4421	1.1125	

* Settlement basis.

PIG IRON PRODUCTION.

Rates per annum, including charcoal pig.

January, 1913	33,275,000
February	34,050,000
March	32,900,000
April	33,850,000
May	33,500,000
June	32,300,000
July	30,500,000
August	30,100,000
September	30,800,000
October	30,350,000
November	27,500,000
December	33,700,000
January, 1914	22,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000
March	24,600,000
April	26,000,000
May	26,800,000
June	29,250,000
July	30,300,000
August	31,800,000
September	35,000,000
Or October 1st	35,900,000

Actual production:

1900	13,789,242
1910	27,303,567
1913	30,966,152
1914	23,332,244

TIN.

THE TIN SITUATION.

The tin market during September was one of the quietest this market has experienced since the war commenced, and some of the trade state that their volume of sales during that month were the smallest in two years. This is explained by the previous large purchases that had been made for future deliveries by consumers, and the large arrivals during the month, some 6,000 tons, placed them in a very comfortable position. Also there was nothing that developed to stimulate purchases into the future, but rather the otherwise. Opening at 33½c for spot Straits, the highest price reached was 33¾c three days later, after which there was an uninteresting market for the balance of the month ruling between this figure and 32¼c on September 23rd which was the lowest price touched. From this there was a recovery to 33¾c, but the improvement was instantly lost and the month closed at 32½c or 1c a pound lower than it opened at.

A feature that dampened the buying interest was the new regulation by the British Consul added to the forms of guarantee under which importations of tin had to be cleared, and which was as follows:—

"All orders received by us for tin plates, or tin canisters and tin boxes suitable for food packing made therefrom or for tin foil, solder, babbitt's metal, type metal or any metallic alloys containing tin, to be sent to neutral European countries, shall be executed from stocks maintained by us in the United Kingdom, or be executed by shipments to the United Kingdom and reshipment from there, under license to be obtained for export therefrom.

"We will not execute any order for tin plates or tin canisters and tin boxes suitable for food packing made therefrom, or for tin foil, solder, babbitt's metal, type metal or any metallic alloys containing tin, to be sent, either directly or indirectly, to any country or State at war with Great Britain.

"We will not sell any tin plates, or tin canisters and tin boxes suitable for food packing made therefrom or for tin foil, solder, babbitt's metal, type metal or any metallic alloys containing tin to

any person in the United States without satisfying ourselves that there is no intention on his part to export or resell the same for exportation, to any countries in Europe other than Great Britain, France, Italy or Russia, otherwise than by shipping to the United Kingdom and reshipping from there, under license to be obtained for export therefrom.

"If we export any tin plates or tin canisters and tin boxes suitable for food packing made therefrom or for tin foil, solder, babbitt's metal, type metal or any metallic alloys containing tin to a destination outside of Europe

TIN PRICES IN SEPTEMBER.

New York.

— London —

Day.	Cents.	Premises.		Futures.	
		£	s. d.	£	s. d.
1	33.50	151	15 0	155	0 0
2	33.75	153	10 0	155	0 0
3	33.87	154	5 0	155	15 0
4	..	..	..	..	..
5	..	..	..	..	..
6	..	152	10 0	154	0 0
7	33.34	152	10 0	154	0 0
8	33.25	152	10 0	154	0 0
9	33.12	152	10 0	154	0 0
10	33.12	153	5 0	154	15 0
11	..	..	..	..	..
12	..	..	..	..	..
13	33.15	154	10 0	155	15 0
14	33.47	153	10 0	154	15 0
15	33.12	152	10 0	153	10 0
16	33.25	154	15 0	154	0 0
17	33.00	152	10 0	153	5 0
18	..	..	..	..	..
19	..	..	..	..	..
20	33.00	152	15 0	153	15 0
21	33.00	153	0 0	154	15 0
22	32.75	152	0 0	152	15 0
23	32.25	150	0 0	150	15 0
24	32.50	151	5 0	152	0 0
25	..	..	..	..	..
26	..	..	..	..	..
27	31.00	152	10 0	151	0 0
28	33.12	153	5 0	154	0 0
29	33.10	153	0 0	154	0 0
30	32.50	151	5 0	152	10 0
High	33.87	154	10 0	155	15 0
Low	32.25	150	0 0	150	15 0
Average	33.13	152	13 2	154	14 5

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.					
	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,785
May	15,938	14,345	13,710	17,862	14,646
June	16,605	12,920	11,101	16,027	15,927
July	16,707	13,346	12,063	14,167	16,084
Aug.	16,619	11,285	11,261	14,452	15,127
Sept.	16,672	13,245	12,943	14,613	15,191
Oct.	14,161	10,735	11,857	10,894	.....
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	5,270
May	4,965	4,310	5,760	6,160	6,900	6,759
June	4,120	5,050	4,290	4,820	5,870	6,665
July	5,040	4,660	4,580	4,770	4,975	5,606
Aug.	5,700	4,680	5,210	6,030	5,515	4,712
Sept.	4,220	5,150	5,430	5,160	4,973	5,296
Oct.	4,480	4,350	4,450	5,020	4,610	.....
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	3,200
May	3,600	3,400	4,250	3,350	3,800	5,600
June	5,000	2,900	2,850	3,800	3,650	3,900
July	3,800	4,300	5,150	3,900	3,900	5,300
Aug.	3,700	3,800	4,300	3,600	2,900	4,500
Sept.	3,300	4,200	3,600	3,100	3,600	4,300
Oct.	3,350	3,500	3,850	3,700	3,700	.....
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Sept.	Aug.	Sept.
Straits shipments	1915.	1915.	1914.
To Gr. Britain ..	749	1,922	3,453
" Continent ..	1,202	845	40
" U. S.	3,345	1,945	1,480
Total from Straits	5,296	4,712	4,973
Australian shipments			
To Gr. Britain ..	253	139	50
" U. S.	nil	nil	nil
Total Australian	253	139	50
Consumption			
London deliveries	1,996	1,767	1,269
Holland deliveries	664	140	1,482
U. S.	4,300	4,500	3,600
Total	6,960	6,407	6,351
Stocks at close of month,			
In London—			
Straits, Australian	2,528	2,474	4,006
Other kinds	1,144	1,319	2,744
In Holland	5	26	375
In U. S. excl. Pacific	4,546	2,527	1,603
Total	8,223	6,346	8,728
Afloat, close of month,			
To London ...	1,448	2,611	3,555
To United States,			
Straits	5,520	6,170	2,330
Total	6,968	8,781	5,885
	Sept. 30,	Aug. 31,	Sept. 30,
Total visible	1915.	1915.	1914.
supply	15,191	15,127	14,613

STRAITS TIN PRICES IN NEW YORK.

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.93
Apr.	42.20	44.02	49.12	36.10	47.97
May	43.10	46.12	49.14	33.30	38.78
June	46.16	47.77	44.93	30.65	40.37
July	42.96	44.75	40.39	31.75	37.50
Aug.	43.45	45.87	41.72	50.59 ¹ / ₂	34.39
Sept.	39.98	40.18	42.47	32.79	33.13
Oct.	41.21	50.11	40.50	30.39 ¹ / ₂
Nov.	43.13	49.90	39.81	33.50
Dec.	44.97	49.90	37.64	33.60
Year	42.68	46.43	44.32	35.70

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not being in British possessions, we will, prior to or simultaneously with the shipment, give you particulars of the goods so shipped and their destination."

This of course, will have the effect of curtailing our export trade for the commodities in which pig tin is a constituent.

Another reason for the slackness in sales of futures was the disinclination on the part of importers to commit themselves to contracts to deliver future tin at a dollar price on account of the extremely low rate of exchange ruling, and the almost certainty that when these future deliveries would be made, exchange would be at a higher figure.

Buyers during the month have not only been upset by these new British Regulations, but also, although the tin plate production during the past few months has been at a record, the canning crop, season in tomatoes and corn, closed rather unsatisfactory, and there has followed a slight curtailment therefore in tin mill operations, the leading interests cutting down their operations about 10%.

It is recognized by consumers that the present price of tin is a very low one, say 32½c as compared with an average price for the previous years as follows:—

35.70c	in 1914
44.32c	in 1913
46.43c	in 1912
42.68c	in 1911
34.27c	in 1910

but it is recognized that the statistics on October 1st which show a visible supply of 15,191 as against last year 14,613 tons does not fully represent the total supply of tin since about 5,000 tons of Banka Tin being carried by the Dutch Government do not appear in these statistics. Also there is a large stock of unsmelted Bolivian Concentrates in Liverpool. The Dutch Government report that they intend to hold their stock of Banka Tin until the end of the year, but while it exists, of course, it is always a feature to be considered.

The price of tin plates is made usually once a year, between the 15th of November and the 15th of December, and at present there is a disposition on the part of the tin plate mills in making pig tin purchases for futures to wait until the price for the

coming season is known. There is every indication on account of the advance in iron and steel that the tinplate price will be advanced 2½c a box, and when this is decided a buying movement into the future from these consuming interests may be expected.

At the very close of the month the market received a shock in the shape of the American statistics showing deliveries as being only 4,300 tons for September with the stock in store in New York 2,220 tons, dock and landing 2,326 tons, in other words, a stock on the first of October about sufficient for a month's consumption. As importers can't carry unsold spot stocks in New York except with J. P. Morgan & Co. as custodian for the British Consul, and the stocks thus being carried are less than 100 tons, the conclusion is that unsold tin is being carried under "general order," bills of lading not having been presented to the Consul for clearance, since consumer's guarantees are not available. This would have had a very bad effect on the market, had it not been that almost simultaneously with it, there developed rumors that an export duty was likely to be put on tin by the British Government of 10%, which would cover of course the Straits Settlements which is a British possession. This report has been contradicted, but there are reasons for believing it is under consideration, and is a very probable development, as it would be put on for revenue purposes, and while the war lasts England will probably need all the increased revenue she can get. It is felt in the trade that it is only a matter of time when such duty will be placed on articles that the rest of the world depend on England for. Such duties would not stop or interfere with exports, the cost of the export duty falling on the American consumer. This has made a very nervous feeling in the market and has unsettled business.

We believe the apex of tin consumption in America has been reached, and that November, December and January will show a falling off. Our recent large deliveries into consumption cannot be continued beyond October. Tin has, strange to say, declined while America was making this splendid record, and it has been a great

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disappointment to those who pinned their faith four months ago on what America would do.

For the present, however, the market will continue nervous over an export duty possibility and this and the very low basis of price that tin has reached would make market very sensitive to any buying movement.

All speculation is killed in this market by reason of the British restriction and is likely to continue absent abroad by reason of financial and other reasons previously given in our reports.

THE TIN POSITION.

A prominent member of the London Metal Exchange discusses the situation as follows:

As there seems to be much divergence of opinion as to whether an oversupply of the metal has been brought about by the war and the exclusion of enemy countries, it may be useful to survey the course of supply and demand and the conditions created during the last thirteen months.

The various receipts from August, 1914 to the end of August, 1915, compared with the previous **13 months** show **supplies** as follows:

	Tons Monthly 1914/15 average		Tons Monthly 1913/14 average	
Straits	69,234	3,300	70,330	5,400
Australian	1,681	130	3,125	240
Banca	11,523	900	14,711	1,100
Billiton	1,717	130	2,431	190
Standard	8,751	670	11,264	860
Statistical totals..	92,926	7,130	101,861	7,790

(The following go partly into Standard, but chiefly direct to consumption).

	Tons Monthly 1914/15 average		Tons Monthly 1913/14 average	
Bolivia	20,752	1,600	26,490	2,000
China	2,366	170	2,222	170
Nigeria	3,668	280	4,816	370
S. Africa	1,106	90	861	70
Other countries (not England)	676	50	244	170
Totals	28,468	2,190	36,633	2,780

In reviewing these figures it should be borne in mind that the value of the metal had steadily declined from above £200 to about £130 just previous to the outbreak of hostilities, which no doubt affected less profitable areas, whilst substantial recover-

ies in price since have been too short lived to stimulate mining.

But no falling off in Banca output has been advised and therefore it is surmised that there must be a large quantity of unsold metal in Java. This however, is not so great as seems apparent, owing to some lots coming via Singapore being included in the Straits' figures. The accumulation is probably not much more than would be normally lying in the Trading Co.'s hands and en route between Java and Holland.

Now taking **consumption**, we find the statistical deliveries over the same period of **13 months** are:—

	Tons Monthly 1914/15 average		Tons Monthly 1913/14 average	
United Kingdom..	28,631	2,200	19,902	1,500
Holland	7,169	470	17,555	1,360
Continent	9,036	700	11,872	900
All Europe	43,866	3,370	49,529	3,760
America	47,170	3,690	48,874	3,700
Totals	91,036	6,960	98,403	7,460

It is obvious that much of the Continental demand has been diverted to England, whilst that shut off has not been made up to the extent of about 6,000 tons.

America did not benefit by Tinsplate activity until recently railroad and other domestic demands revived, and now a big consumption there seems assured for some time.

The **visible supply** dropped from **16,661 tons** on 31 July, 1914, to **13,128 tons** on 31 October, 1914—975 tons "Straits" being lost in the S.S. "TROILUS"—then gradually advanced to **18,220 tons** on 31 July, 1915, and stood at **17,376 tons** 31 August, 1915.

Banca in the Trading Co.'s hands in Holland is reduced from 4,869 tons, end July, 1914, to 950 tons.

Just now supplies appear to be falling somewhat behind requirements.

With all the Bolivian coming to England, accumulations of ore in Liverpool, reached 6,000 tons fine, which coincides with the reduction in European consumption, and if the smelting capacity and labor here had been sufficient, the Visible Supply by now might have shown a considerable increase. Some attempt is being made in the United States to smelt Bolivian ores, but this must take time before it can become important.

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Although practically unavailable to the market, the existing surplus then lies mostly in the stocks of ore, and as it seems impossible to regularly dispose of so much with the exclusion of German smelters, the shippers may be obliged to make smaller consignments.

In this direction there is already a greater falling off in arrivals of Bolivian, which if continued would be felt should reserves get worked off.

As regards the general situation, the effect of the war seems as follows: A larger Visible Supply is required by the additional quantities locked up through delays in transit. No speculative control is attempted and the London market does not regulate prices as formerly, American consumers buying largely direct in the East, to some extent shipment via Panama. The lessened activity here causes the market to be inert and narrow; liable to sag in the intervals of consumers buying and to rally sharply on receipt of larger orders. The net return obtained by producers is adversely affected by the higher freight and insurance charges.

COMPOSITE METAL PRICES.

Computation of October 1, 1915

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	14.18¾	35.468
4	Lead (St. Louis)	4.45	17.800
3	Copper (Electro)	18.00	54.000
½	Tin (New York)	32.25	16.125
10 pounds			123.393
One pound			12.393

Monthly averages:

	1912.	1913.	1914.	1915.
January	9.778	10.987	9.105	8.836
February ...	9.677	10.260	9.294	9.878
March	9.886	10.024	9.026	10.977
April	10.277	10.198	8.844	11.977
May	10.468	10.163	8.668	13.063
June	11.014	9.648	8.431	15.771
July	11.043	9.398	8.345	14.939
August	11.092	10.025	9.111	12.274
September ..	11.575	10.350	8.067	12.506
October	11.596	10.029	7.500	.....
November ...	11.372	9.590	7.873	.....
December ...	11.219	9.053	8.400	.....
Year	10.750	9.977	8.555	.....

COPPER SITUATION.

The copper market opened stagnant at about 17½¢ cash New York on 11th inst. with the producers holding at 18¢ delivered, the market being affected by the low price of foreign exchange, which, of course, was very unfavorable for export orders. The market was stagnant and barely business until the middle of the month, when with the starting of a serious strike at the Arizona Copper Mines (which still continues), and the prospect of a foreign loan to restore the sterling exchange situation (since completed), buyers who had been holding off so long came in for fair quantities. On a business estimated at around forty million pounds, the market improved to 17½¢ cash and producers after selling largely at 18¢ delivered, advanced their price to 18½¢ to 18¾¢. Market has since remained quiet and unchanged, with only a moderate business doing.

The Arizona mines affected by the strike produce about 70,000,000 pounds a year, say 6,000,000 pounds per month as follows:

	Pounds
Detroit	2,000,000
Shannon	1,750,000
Arizona	2,250,000

Under normal conditions all the output of the "Arizona" is shipped to England in the shape of blister copper.

There is up to the present, no signs of any settlement of the strike, and the curtailment that has taken place at the rate of 6,000,000 pounds per month will not be felt for nearly two months from now in the refinery output.

If the strike continues it will reduce somewhat, the surplus of stocks in producers' hands, which is believed to be increasing at the rate of twenty-five to thirty million pounds per month, the cause for which is the present record production in America and the falling off in exports.

American consumption is probably running at its highest rate, on account of the extraordinary activity of our brass and copper mills in war orders, but actual home consumption is probably not over 60% of normal.

There has been all through the month a contest between the consumer and the pro-

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York

	1911.	1912.	1913.	1914.	1915.
Jan.	12.55	14.37	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.27	15.73	14.44	18.81
June	12.63	17.43	15.08	14.15	19.92
July	12.52	17.37	14.77	13.73	19.42
Aug.	12.70	17.61	15.79	12.68	17.47
Sept.	12.57	17.69	16.72	12.44	17.76
Oct.	12.47½	17.69	16.81	11.66	.....
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av..	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	18.60
June	12.55	17.29	14.85	13.81	19.71
July	12.62½	17.35	14.57	13.49	19.08
Aug.	12.57½	17.60	15.68	12.41½	17.22
Sept.	12.39	17.67	16.55	12.09	17.70
Oct.	12.36	17.60	16.54	11.40	.....
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50½	14.47	12.93	.....
Av..	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of Casting Copper in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.53	14.18	16.48
May	12.08	16.01	15.45½	14.00	17.41
June	12.40	17.08	14.72	13.65	18.74
July	12.49½	17.09	14.40½	13.34½	17.76
Aug.	12.42	17.35	15.50	12.27	16.46
Sept.	12.23	17.51	16.37½	12.00	16.75
Oct.	12.21	17.44	16.33	11.29	.....
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56½	17.34	14.22	12.83½	.....
Av..	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since September 1, 1914 are given in the following table together with the price of Lake copper on the same dates:

1914—	Sheet Copper.	Lake Copper.
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19 ...	17.00	12.25
November 23 ...	17.50	12.62½
December 1, ...	18.00	12.90
December 15 ...	18.50	13.50

1915—

January 16	18.75	13.75
January 21	19.00	14.12½
January 25	19.50	14.37½
January 29	19.75	14.62½
March 22	20.25	15.12½
March 25	20.50	15.434
March 27	20.75	15.75
April 8	21.00	16.50
April 13	21.25	16.62½
April 14	21.50	16.75
April 17	22.00	17.00
April 19	22.50	17.62½
April 22	23.00	18.00
April 28	24.00	18.934
June 8	24.50	19.62½
June 9	25.00	19.87½
July 27	24.50	18.87½
July 31	24.00	18.75
August 18	23.00	16.75

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914.	1915.
January ..	31,229	25,026	36,018	26,193
February ..	31,894	26,792	34,634	15,583
March ...	27,074	42,428	46,504	30,148
April	22,591	33,274	35,079	18,738
May	32,984	38,601	32,077	28,889
June	26,669	28,015	35,182	16,976
July ..	26,761	29,596	34,145	17,708
August ..	29,526	35,072	16,509	17,551
September	25,572	34,356	19,402	*14,227
October ..	25,020	29,239	23,514	.....
November	19,171	29,758	24,999	.....
December	29,474	30,653	22,166
Total ..	327,965	382,810	360,229

* Includes only exports from Atlantic ports.

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ducer. The latter is confident that a great improvement is imminent in home consumption, and cites the improvement in the iron trade, also that the foreign demand both for war necessities and the obstacle of the foreign exchange situation being in process of adjustment must increase. On the other side the consumer not fortunate in having war orders finds his trade below normal and very dull and the copper looks high to him, and his claim that stocks are increasing in producers' hands is not denied.

The brass mills busy on war orders are placing the orders for their raw material as quickly as such orders are booked, and

in their purchases discounting the expectations of producers, it is certainly not because these buyers are not knowing what they sell.

The market is full of talk originating from producers and Wall Street. While higher prices are produced by these interests they do not consider that there is a steady increase taking place in stocks by reason of the falling off in exports and the large production. But consumers are "from Missouri," and continue to claim they see nothing in their business to justify what is being dinned into their ears, about the condition of their trade and what is impending in demand.

It is a feature that all the year the rough casting has been scarce, but demand poor, there have virtually been no outside lots of copper offering, except some Lake brands like Laramack, and some second hand lots of Copper Range were sold at 17 1/2c.

The American buyer probably feels that the loan has saved us from what might have been a big set-back to our prosperity and export trade, and will only postpone conditions to which they can better this dangerous foreign exchange situation developed; that we have reached the limit of war orders in this country and as such believe that stocks of copper are increasing in producers' hands. They do not overlook the financial strength of the producers to control and hold copper at their own price for a while, but they do remember what follows when buyers come in after a long cessation of purchases, and

COPPER PRICES IN SEPTEMBER.

Day.	— New York —			London.		
	Lake.	Electro.	Casting.	Standard.	£	s d
1	17.68 3/4	17.50	16.75	67 15 0		
2	17.68 3/4	17.50	16.75	68 5 0		
3	17.68 3/4	17.50	16.75	67 12 6		
4	.....	.....	.....	.....
5	.....	.....	.....	.....
6	.....	.....	.....	66 0 0		
7	17.50	17.37 1/2	16.50	66 5 0		
8	17.50	17.37 1/2	16.50	67 2 6		
9	17.50	17.37 1/2	16.50	67 0 0		
10	17.50	17.37 1/2	16.50	67 10 0		
11	.....	.....	.....	.....
12	.....	.....	.....	.....
13	17.50	17.37 1/2	16.50	68 5 0		
14	17.75	17.62 1/2	16.62 1/2	68 15 0		
15	18.00	17.87 1/2	16.75	69 2 6		
16	18.00	17.87 1/2	16.75	69 2 6		
17	18.00	17.87 1/2	16.75	69 0 0		
18	.....	.....	.....	.....
19	.....	.....	.....	.....
20	17.75	17.87 1/2	16.75	69 10 0		
21	17.75	17.87 1/2	16.75	70 7 6		
22	17.75	17.87 1/2	16.75	70 2 6		
23	17.75	17.87 1/2	16.75	69 12 6		
24	17.75	17.87 1/2	16.75	69 12 6		
25	.....	.....	.....	.....
26	.....	.....	.....	.....
27	17.90	17.90	16.80	70 17 6		
28	17.95	17.95	17.12 1/2	71 0 0		
29	18.00	17.95	17.12 1/2	71 5 0		
30	18.00	18.00	17.25	72 0 0		
High	18.12 1/2	18.12	17.37	72 0 0		
Low	17.37 1/2	17.25	16.7	66 0 0		
Av'ge	17.76	17.70	16.75	68 18 3		

WATERBURY COPPER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87	14.50	17.00	14.15	14.00
Feb.	12.25	14.50	15.50	15.12	14.25
Mar.	12.50	15.00	15.02	15.00	15.25
Apr.	12.50	16.00	15.75	14.87 1/2	18.50
May	12.87	16.87	15.87	14.75	22.50
June	12.62 1/2	17.50	15.75 1/2	14.75	22.50
July	12.25	17.75	14.75	14.12 1/2	22.37
Aug.	12.75	17.75	15.62	13.00	18.50
Sept.	12.62	17.87	16.87	12.87	18.50
Oct.	12.50	17.75	16.87	12.25	
Nov.	12.87	17.75	16.25	12.25	
Dec.	12.87	17.75	15.00	12.25	
Av.	12.25	16.71	15.83	13.91	

COPPER.

cially when the fundamental position has not improved in the meanwhile.

Labor troubles which have during the month been a feature in trades using copper are also upsetting.

A member of the London trade says of the situation:

"It is perfectly obvious that the allied governments, now that they are making munitions, will be from week to week buyers of copper, but the question for the market is, will that buying, plus the miscellaneous demand of the world be equal to the output of copper? We believe it will not, and if every time, the government purchases your market is going to assume that it justifies a

boom, they will lose a great deal of money. There must be a steady, continuous consumption for war purposes, just as there is a continuous production. It is absurd to cry copper up to the skies, every time consumption buys, without considering whether consumption buys enough to equal the production.

"Your producers may be helped for a time by beating the 'drum' over each sale, and directing public opinion to one side of the transaction only—the buying. But the statistical position in the end must prevail, and over here we believe more is being produced, than is being sold."

METALS CONSUMED IN SHELL MANUFACTURE.

The demands of manufacturers of shrapnel and other shells and rifle cartridges constitute an important item in the consumption of copper, spelter and other metals. The metals needed to execute the war orders already placed are estimated at over 10% of last year's copper production of the United States, about 7% of the spelter production, and nearly 20% of the lead production. A British 18-pounder, or 3-3-in. shrapnel, requires 5 lbs. 9½ oz. of brass containing 66 to 70% Cu, or nearly 3¾ lbs. A small copper band around the shell adds 4¾ oz., making the total copper 4.04 lbs. Spelter consumption per shell of this size is about 1.87 lbs. Lead bullets weighing 7.92 lbs., and composed of 7 parts Pb to 1 Sb, constitute the metal load of the projectile. Estimating the total orders for shrapnel and other shells placed in the United States by Europe at 25,000,000 shells, these orders would call for a total of 101,000,000 lbs. of copper, 46,750,000 lbs. of spelter, and

173, 250,000 lbs. of lead. Actually the metal consumption is larger as a fair proportion of the shells are 4.7-in. howitzer shells, using more brass; some 6-in., 7½-in., and probably 9-in. shells are also being made. Rifle cartridges are composed mainly of copper, there being 1 lb. of it used in making 24 Lebel cartridges, a type widely used by the French Army. Every 125 of these cartridges consume 1 lb. of spelter and a small amount of nickel. Steel consumption per shell varies more widely with the different types. A finished 3.3-in. shell contains 6 lbs. 15¼ oz. of steel; the steel shell weighing 6 lbs. 5¼ oz., and the diaphragm 9½ oz. If the shell is made from a steel bar, the weight of this is about 17 lbs.; while a forging for the same purpose weighs approximately 14½ lbs., and a "bottle" made by the seamless tube process somewhat less.—"Iron and Coal Trade Review."

SPELTER.

SPELTER SITUATION.

The fluctuations in spelter prices in September were very moderate as compared with what happened in the five preceding months and although the market was alternately firm and easy the extreme range of prices was only $1\frac{1}{2}\text{c}$ per lb. The ten days in August witnessed a recovery which advanced prices from 11c to $16\frac{3}{4}\text{c}$, but it was too rapid, and efforts by producers to sell on the advance caused a reaction during September to $13\frac{1}{2}\text{c}$ on September 20th. Later on an improved demand for prompt deliveries the price crossed 14c again. Coincident with the decline in our market the price in London reacted from £72 to £63 which put an end for the time being to any export buying, but commencing on the end of the month market abroad also began to stiffen up again.

The balance between supply and demand which was badly out of joint during June and July has become more even again through the increased production and it is plain that with the opening up of old smelters and the completion of new plans that the spelter output during the fourth quarter of the year will be by long odds the largest on record. It is fortunate for the trade that these facilities exist because as we have seen the demand during the first half of the year largely exceeded the supply and were it not that large surplus stocks were held by the producers in January and February the metal would have gone to even more extravagant heights than it did. By the end of June the producers' stocks had been reduced to 5,884 tons or less than five days' supply which is a small margin to work on in conditions like these when the American consumer is called upon to compete against the makers of war munitions who are seemingly allowed to pay whatever prices are necessary so long as adequate supply of spelter is secured. In a situation of this sort the shortage of supplies has to be borne by the regular consumer, as we saw during July and August when the operators of the sheet galvanizers and other large consumers were reduced to 25% to 33% of normal, the reason being they simply could not pay the price which the munition makers were paying. A decline in prices of approximately 50% has relieved the situa-

tion considerably but the sheet galvanizing trade is still lagging behind the other iron and steel industries. The demand for brass and other articles for war purposes continues to be uniformly good, although less in evidence than before owing to the increase in supplies, and as all evidences point to the war continuing for at least another year and as the expenditure of ammunition by the Allies is becoming larger and larger it would seem idle to look for any falling off in the demand from this quarter. As we regard it the amount of ammunition made this winter will be up to the full extent of the producing facilities and the consumption of spelter for this use will increase.

At this writing, however, there is no sign

SPELTER PRICES IN SEPTEMBER.

Day.	New York.	St. Louis.	London.
	Cts.	Cts.	£ s d
1	15.75	15.12½	72 0 0
2	15.25	15.00	72 0 0
3	15.50	15.00	72 0 0
4	.....	.....	.....
5	.....	.....	.....
6	.....	.....	72 0 0
7	15.12½	14.75	72 0 0
8	14.87½	14.06½	72 0 0
9	14.75	14.12	72 0 0
10	14.62½	14.00	72 0 0
11	.....	.....	.....
12	.....	.....	.....
13	14.50	13.87	71 0 0
14	14.00	13.62	71 0 0
15	14.00	13.62	68 10 0
16	14.00	13.62	68 10 0
17	14.00	13.75	66 0 0
18	.....	.....	.....
19	.....	.....	.....
20	13.75	13.50	65 0 0
21	13.68½	13.43½	63 10 0
22	14.00	13.75	63 0 0
23	14.12	13.87	63 0 0
24	14.50	14.00	63 0 0
25	.....	.....	.....
26	.....	.....	.....
27	14.62	14.37	63 0 0
28	14.50	14.37	63 0 0
29	14.50	14.25	63 0 0
30	14.50	14.12	65 0 0
High	16.00	15.25	72 0 0
Low	13.62	13.43	63 0 0
Average	14.49	14.13	67 10 0

SPELTER.

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc since the beginning of 1915 together with the price of spelter ruling on the same day.

1915—	Sheet Zinc.	Spelter St. Louis.
January 19	9.25	6.10
January 21	9.50	6.75
January 26	10.00	7.31½
February 2	10.50	7.87½
February 5	11.00	7.93¾
February 8	11.50	8.00
February 12	12.00	8.25
February 19	12.50	9.25
March 1	13.00	10.25
March 5	13.50	11.00
April 22	13.75	12.12½
April 23	14.50	12.37½
April 27	15.50	13.75
April 28	16.00	13.75
April 30	17.50	13.75
May 18	18.50	15.12½
May 20	19.50	16.00
May 25	20.00	18.75
May 26	22.00	19.25
May 29	24.50	20.75
June 1	26.00	22.50
June 3	30.00	26.00
June 9	33.00	25.75
June 14	30.00	22.75
June 23	27.00	18.25
July 27	24.00	18.37½
August 6	21.00	16.12½
August 16	17.00	12.12½
August 23	15.00	12.00
August 24	16.00	12.75

LEAD (Monthly Averages.)

—New York*— —St. Louis—

	1913.	1914	1915.	1913	1914.	1915.
Jan.	4.35	4.11	3.74	4.20	3.99½	3.57
Feb.	4.35	4.06	3.82	4.20	3.95	3.72
Mar.	4.35	3.97	4.03	4.21	3.83	3.98
Apr.	4.40	3.82	4.19	4.25½	3.70	4.11
May	4.36	3.90	4.23½	4.22	3.81	4.16
June	4.35	3.90	5.86	4.21	3.80	5.76
July	4.37	3.90	5.74	4.25	3.75	5.52
Aug.	4.63	4.00	4.75	4.56	3.73½	4.59
Sep.	4.75	3.86	4.62	4.62	3.67	4.53
Oct.	4.45	3.54	...	4.31	3.39	...
Nov.	4.34	3.68	...	4.18	3.58	...
Dec.	4.06	3.80	...	3.94	3.67	...
Av.	4.40	3.87	...	4.26	3.74	...

* Trust price.

SPELTER (Monthly Averages.)

—New York— —St. Louis—

	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	7.23	5.33	6.52	7.04	5.14	6.33
Feb.	6.49	5.46	8.86	6.25	5.27	8.61
Mar.	6.29	5.35	10.12½	6.08	5.15	9.80
Apr.	5.79	5.22	11.51	5.59	5.03	11.22
May	5.51	5.16	15.82½	5.31	4.96	15.52
June	5.23½	5.12	22.63	5.05	4.93	22.14
July	5.41	5.03	20.80	5.23	4.84	20.53
Aug.	5.80	5.63	14.45	5.64	5.45	14.19
Sep.	5.83	5.52	14.49	5.65	5.33	14.10
Oct.	5.47	4.99½	....	5.27	4.81	....
Nov.	5.34	5.15	....	5.15	4.97	....
Dec.	5.22	5.67	....	5.03	5.49	....
Av.	5.80	5.30	....	5.61	5.11½	....

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	5.77	6.78	7.56	5.54	6.55
Feb.	5.78	6.85	6.81	5.70	11.85
Mar.	6.01	7.17	6.56	5.59	12.15
Apr.	5.85	7.07	6.08	5.50	13.85
May	5.76	7.13	5.77	5.28	20.55
June	5.89	7.25	5.50	5.37	25.60
July	6.11	7.46	5.61	5.26	24.90
Aug.	6.29	7.34	5.99	5.66	19.30
Sep.	6.29	7.52	6.13	5.91	17.85
Oct.	6.49	7.83	5.74	5.23	...
Nov.	6.90	7.74	5.60	5.38	...
Dec.	6.81	7.65	5.44	5.90	...
Av...	6.16	7.33	6.06½	5.53½	....

SPELTER PRICES IN ST. LOUIS.

Extreme fluctuations of Prime Western Spelter, East St. Louis delivery, by months and years:

	— 1914 —			— 1915 —		
	High.	Low.	Av'ge.	High.	Low.	Av'ge.
Jan.	5.25	5.10	5.14	7.62½	5.55	6.33
Feb.	5.35	5.20	5.27	10.00	7.65	8.62
Mar.	5.22½	5.12½	5.15	11.00	8.87½	9.80
Apr.	5.12½	4.85	5.03	14.00	9.25	11.22
May	5.51	5.16	15.82½	5.31	4.96	15.52
June	4.97½	4.82½	4.93	27.00	17.50	22.14
July	4.95	4.80	4.84	22.75	17.75	20.53
Aug.	6.00	4.70	5.45	18.00	10.75	14.19
Sep.	5.85	4.95	5.35	15.25	13.37½	14.10
Oct.	5.00	4.60	4.81	....	....	....
Nov.	5.20	4.80	4.97	....	....	....
Dec.	5.65	5.20	5.49	....	....	....
Year	6.00	4.60	5.11½	....	....	....

LEAD.

that the demand during the balance of the year will exceed the output and for next year's deliveries buyers are being given an opportunity to buy the first half at 11c St. Louis which they are not over eager to take. The policy of buying from hand to mouth still appears to be a dangerous one because producers will not willingly carry stocks for consumers to call for when required, and we repeat what we said last month that the consumer who runs his supplies too close may have to pay dearly at times for his conservatism.

LEAD SITUATION.

In the last week in August there were three advances in the Trust price of lead which put the market to 4.90c New York, but either the buying did not turn out as expected on else it was seen that the output would be increased over and above its already high level, because on September 9th the Trust lowered their quotation \$4 a ton and on the 14th another \$4 a ton making the price again 4.50c New York. There were no other changes during the month except that the independents were occasionally quoting at \$1 a ton rise over the Trust price.

It was at 4.50c that the market righted itself after the collapse from 7½c in June and once more the market has settled down at this figure. According to outward signs the buying at this level takes care of the current output which by the way is said to be considerably higher than last year which in turn was a new high record.

Another feature is that this price is about on a par with London and our export business which was practically lost when our market was soaring is coming back to us again. The importance of the export trade is shown in the fact that during the year ended July we shipped no less than 77,642 tons of domestic lead out of the country together with 35,321 tons of lead of foreign origin. The exports by months are given below and the figures also serve to show the sharp shrinkage which followed the advance in prices here in June-July.

(Tons of 2240 pounds)

	Foreign in Bond	Domestic
August, 1914	4,758	
September	824	2,493

	Foreign in Bond	Domestic
October	2,251	6,990
November	4,729	7,515
December	2,546	2,894
January, 1915	3,911	5,767
February	4,355	3,410
March	4,209	6,369
April	4,583	17,755
May	2,697	13,671
June	2,337	4,823
July	2,879	1,290
Total, 12 mos.	35,321	77,642

The speculation in the metal, which applies quite as much to consumers as to dealers, has spent itself, and as the independent producers are holding their price at the Trust level or higher, the market is now within the power of the leading interest than it has been for several months.

LEAD PRICES IN SEPTEMBER.

Day.	New York.*	St. Louis.	London.
	Cts.	Cts.	£ s d
1	4.90	4.80	22 17 6
2	4.90	4.80	22 17 6
3	4.90	4.80	22 17 6
4			
5			
6			22 17 6
7	4.90	4.80	22 17 6
8	4.85	4.80	22 18 9
9	4.70	4.60	22 18 9
10	4.70	4.60	22 18 9
11			
12			
13	4.70	4.60	22 17 6
14	4.70	4.60	22 17 6
15	4.50	4.40	22 18 9
16	4.50	4.40	22 18 9
17	4.50	4.40	22 18 9
18			
19			
20	4.50	4.40	22 18 9
21	4.45	4.35	22 17 6
22	4.45	4.35	22 17 6
23	4.50	4.40	22 18 9
24	4.50	4.40	22 18 9
25	4.52	4.43	22 18 9
26	4.52	4.43	22 18 9
27	4.57	4.47	22 18 9
28	4.57	4.47	22 18 9
29	4.57	4.47	22 18 9
30	4.57	4.47	22 18 9
High	4.90	4.82	22 17 6
Low	4.45	4.35	22 17 6
Average	4.64	4.55	22 17 6

* Outside market.

ANTIMONY — ALUMINUM

ANTIMONY SITUATION.

September was the duller month that the antimony market has seen this year, but even at that there were some active days when the transactions were large enough to amount to a full month's business in normal times. This year, however, the business has been nearly double the ordinary so that when the demand goes back to normal the market has the appearance of being dull. Prices showed no special change being quoted at 28½¢ at the end of the month as against 29¢ at the beginning. Importers' quotations ranged from 26¢ to 27¢ in bond but latterly have been indifferent sellers, unless they could realize the higher figure. China has been a freer offerer than Japan but the cheapest lots were often quoted by local interests and represent it is thought the liquidation of dealers' holdings. Dealers do not seem to be replacing their sales by the purchase of futures. China and Japan who have had this market all to themselves for some months due to the embargo on shipments from Europe, are now facing competition from American made antimony which is now making an appearance here in good sized quantities. The metal is being produced on the Pacific coast and the quality appears to be equal to any of the Far Eastern grades. The production at present is estimated at 100 to 150 tons per month but it is said that by the end of the year it will be over 300 tons per month, or one half the ordinary domestic consumption. This together with the great increase in the output of the metal both in China and Japan should insure a full supply for all munition purposes especially as it is known that ordinary antimony consumer is practicing every economy with the price at this level.

In England the industry market is practically in the hands of the government who are given first call on all supplies. The price in England is more or less a nominal one, but even then is 5¢ or more below the price here.

The imports are increasing and those for July were 200% greater than the year before, but for the seven months ending July the gain was 2,481,080 lbs. or 31%.

ALUMINUM SITUATION.

The aluminum market during the month of September did not develop much activity until towards the end of the month when some quiet buying by big consuming interests and dealers cleared the market of most of the floating supplies and prices began to advance. There is quite a good demand for export and during the month some thing like 181 tons have been shipped abroad. Considering that all imports have stopped for months and that the only American producer is heavily oversold and months behind in his deliveries this export demand is a serious feature in the situation. Supplies today are limited absolutely to the stock in the hands of consumers and dealers. The quantities doled out by the home producer are hardly sufficient for the actual needs of their own consuming trade. The new demand that has developed for certain munitions of war has to be filled from scrap and the hidden stocks and the rapid advance at the end of the month shows conclusively the scarcity of supply.

The one American producer is undoubtedly doing the best he can to take care of his customers and do the right thing. We believe in giving the devil (nothing personal) his due and in this connection we wish to call attention to the fact that the home producer has kept his prices down to a normal basis in fear of a great scarcity of supplies and a stoppage of all imports. It is reported the price of the Aluminum Co. of America is 35 cents for next year but no new business can be taken care of until the middle of the year.

The average price of No. 1 virgin aluminum for the month of August was 34.00, the average for September 46.75.

At the close of September, prices were around 48½ to 49 cents.

It is as well to note that these high prices are already having an effect on the normal home consumption, this is specially noticeable in the foundry trade, the demand for aluminum for castings has fallen off more than 50%, grey iron is taking the place of aluminum whenever it is possible. At present the scarcity is more or less acute and there is nothing in sight today to relieve the situation.

ANTIMONY—ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	32.07
May	9.48	8.00	8.77	7.29	39.75
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av..	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Halletts antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	29.41
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av..	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY.

Average monthly price of Chinese and Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93½
Apr.	8.34	6.87	7.82	5.82	23.97
May	8.06	6.98	7.75	5.78	34.71
June	7.38	7.07	7.62	5.62½	36.53
July	7.32	7.37	7.55	5.44	35.98
Aug.	7.22	7.58	7.48	13.05	32.119
Sept.	7.13	8.00	7.31	9.79½	28.50
Oct.	6.94	9.11	6.46	11.64	.....
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Av..	7.48	7.63	7.43	8.53½	.....

ALUMINUM, SILVER and ANTIMONY PRICES IN SEPTEMBER.

	Aluminum.	— Silver —			Antimony*
	N. Y.	N. Y.	London.	N. Y.	
Day.	Cents.	Cents.	Pence.	Cents.	
1 ..	37.00	46½	23½	29.00	
2 ..	42.50	47½	23½	28.75	
3 ..	42.50	48½	23½	28.75	
4 ..	.....	48½	23½	.....
6 ..	.....	.....	23½	.....
7 ..	43.50	48½	23½	28.75	
8 ..	.....	48½	23½	28.75	
9 ..	.....	48½	23½	28.75	
10 ..	.....	48½	23½	28.75	
11 ..	.....	48½	23½	.....
13 ..	.....	48½	23½	28.75	
14 ..	50.00	48½	23½	28.75	
15 ..	50.00	48½	23½	28.50	
16 ..	48.50	48½	23½	28.50	
17 ..	48.50	48½	23½	28.37½	
18 ..	.....	48½	23½	.....
20 ..	48.50	48½	23½	28.37½	
21 ..	47.00	49½	23½	28.25	
22 ..	47.00	49½	23½	28.25	
23 ..	48.00	49½	23½	28.25	
24 ..	48.00	49½	23½	28.25	
25 ..	.....	49½	23½	.....
27 ..	48.00	49½	23½	28.00½	
28 ..	48.50	49½	23½	28.00½	
29 ..	48.50	49½	23½	28.25	
30 ..	48.75	49½	23½	28.75	
High	50.00	49	23½	29.50	
Low	36.00	46½	23½	28.00	
Av'ge	46.75	48.68	23.605	28.50	

* Chinese and Japanese.

ALUMINUM AND SILVER PRICES.

	— New York —					
	—Aluminum—			—Silver—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.95	57.56	48.80
Feb.	26.20	18.80	19.20	61.64	57.50	48.48
Mar.	26.72	18.30	18.95	57.87	58.07	50.24
Apr.	26.91	18.08	18.83	59.49	58.52	50.25
May	25.95	17.93	21.85	60.36	58.18	49.91
June	24.79	17.82	29.66	58.99	56.47	49.07
July	23.34	17.59	32.50	58.72	54.63	47.52
Aug.	22.73	20.38	34.00	59.29	54.34	47.18
Sept.	22.00	19.28½	46.75	60.64	53.29	48.68
Oct.	20.32	18.25	.....	60.19	50.65	.....
Nov.	19.49	18.83	.....	58.99	49.10	.....
Dec.	18.85	19.02	.....	57.76	49.38	.....
Av.	23.63	18.59½	.....	59.79½	54.81	.....

Review of Joplin Ore Market.

The zinc blende ore market for the month of September was steady and one of unusual strength, the market approaching closer to a normal standard than it has for the past nine months, the demand for ore was good throughout the entire month and prices were correspondingly strong with a rising tendency towards the later part. The prices paid the last week in the month covered a base range of \$70 to \$80 per ton on a basis of 60 per cent. zinc, the lowest base price paid during the entire month was \$65 per ton, while the highest base price paid was \$86 per ton. There was a decided strengthening in the demand for second grade ores, the cause for this is very likely due to the fact that a smaller tonnage of high grade ore was produced this month than normally, caused by the flooding of many of the high grade mines in the district, due to excessive rains. The increased demand for the second grade ore has very materially reduced the surplus ore which had accumulated to approximately 5,100 tons for the previous month, the estimated surplus now being 2,000. The total tonnage of ore sold for the month was 23,192 tons at an average price of \$72.62 per ton, giving a total value of \$1,693,749 or an increase of 2,675 tons and \$1.65 per ton over the previous month. This month's sales makes a total for the year of 207,486 tons at an average price of \$73.56, giving a total value of \$15,263,347 which is an increase over the sales covering the same period last year of 18,106 tons and \$33.83 per ton, giving an increased valuation of \$7,977,071 or a valuation more than double the 1914, production.

The calamine ore market held steady and strong throughout the entire month, the prices paid for ore covered a base range of \$45 to \$75 per ton of 40 per cent. zinc, the highest prices prevailed throughout the first week of the month when the demand for this ore slackened and prices fell off slightly, although a stronger market was apparent at the close of the month. There was sold a total of 1,720 tons at \$58.40 per ton, giving a value of \$101,527. the sales by weeks averaging 430 tons or an increase of 146 tons per week over the previous month. The total tonnage sold for the past nine months is 15,259 tons at an average price of \$45.27 per ton giving a value of \$690,741

which in comparison with the figures covering the same period in 1914 show an increase of 1,721 tons and \$23.39 per ton, giving an increase in the valuation of \$394,520 or more than double the valuation covering the same period in 1914. A very much greater demand for calamine ore has been in evidence for the past five months, a number of new smelting companies who entered the field early in 1915 have taken to purchasing all the high grade calamine ore that can be secured, with the result that the prices paid for this ore are much above an equal basis with the blende ore, the base price for this ore is normally greater than \$20 per ton lower than the base price for blende ore, but for the past four or five months the high base price of calamine ore has been within \$10 per ton of the high base price for blende ore which has greatly stimulated the production of this ore as greater profits are to be made on calamine than on either blende or lead ores.

The lead ore market for the month of September was stronger in both demand and price than for the past month, the prices paid the first part of the month were the lowest being \$45 to \$46 per ton on a basis of 80 per cent. lead, the price rising to \$52 per ton the last week. There was a total of 3,638 tons at an average price of \$49.48 per ton, being a total valuation of \$180,240 for the month, the average weekly sales were 910 tons which is a decrease of 112 tons per week under the sales of the previous month. The total ore sold for the past nine months is 32,569 tons at an average price of \$51.71 per ton, giving a total valuation of \$1,684,468 which is an increase in value of \$24,474 covering the same period in 1914. The estimated surplus ore held by the producers is 1,200 tons showing a decrease of 300 tons under the previous month.

The total value for all the ores produced in the district for the past nine months' period in 1915 is \$17,638,556 which is nearly as great as the total production for the record-breaking year of 1912, basing the rate of production for the next three months on what has been produced, the total valuation for the year will be approximately \$23,500,000.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, NOVEMBER, 1915.

NO. 11.

Published Monthly by the American Metal Market Company, 81 Fulton St., New York.

C. S. Trench, President,

C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year for United States, Canada and Mexico; for other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class mail matter.

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THE BUSINESS SITUATION.

Industry and business in America has made tremendous strides during the past month. In every direction there is a broadening and speeding up in trade, and while the extraordinary demand for war munitions and supplies is at the basis of our present prosperity, there are other fundamental causes which make the great change that is taking place temporarily logical and sound as far as it has gone, to wit, bountiful crops, large war business and profits resulting in a sensational balance of trade and consequent easy money, full employment and a natural movement to replace depleted stocks of merchandise, after allowing them to run down to bare poles. It is wise however, not to lose sight of the fact that the state of prosperity we are enjoying is more or less precarious because it is to a great degree based upon unstable and uncertain foundations, certainly so as regards conditions caused by the war.

A Time for Conservative Judgment.

Readers of the Digest will remember when everything was so demoralized by the outbreak of war, we predicted a great deal of what is taking place today. We feel therefore we may be excused if now, when nothing is seen but a sensational business situ-

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ation, and nothing heard but the confident assertion that we are wound up to go with increasing speed through 1916, that we should decline to be carried away by the wave of excited optimism regarding the future.

Recent Pace Too Rapid.

For one thing we think the pace has been too rapid to last. There is also too much in our present business movement based on a nervous mental condition, and matters, the future development of which cannot be definitely predicated.

Danger of Over-Confidence.

Our present danger is one of over-confidence. From acute pessimism the pendulum has swung to the other extreme. The whole situation is a wonder to even some of the most scientific observers. Such a movement as we are having carries in its very demonstration the seeds of a reaction. The business pendulum has a way of refusing to remain at an angle of 45 degrees, the moment the extraordinary forces that have put it there do not continue to exert power. The very rapidity of the sensational movement indicates to our mind a limited existence. As a well known authority said this week: "There is a big swift river to cross before this country can safely rely upon having a long period of uninterrupted prosperity before it.

Inflation.

One of the dangers we are facing is that of inflation as result of the world's stock of gold being unsettled, and this country getting more than its share. The new federal reserve system has decreased the proportion of banking reserves required, and in consequence and by reason of enormous

profits made on war orders, and the stupendous balance of trade in favor of this country, our banks are burdened with money and are free lenders. Comparing loans and discounts of December 26, 1914, with those of October 16, 1915, New York, Philadelphia and Boston banks have expanded from \$1,887,000,000 to \$2,570,000,000. In Wall Street a wild and crazy speculation in war stocks is going on in which the public is heavily engaged. 32,347,181 shares were dealt in on the N. Y. Stock Exchange in October and to find a like volume of business one has to go back to 1907. As we said last month if the speculative gas is not let out in an orderly way, it will go out with a bang.

End of War Dreaded.

It is one of the curious and unreliable features of the situation that business and Wall Street trembles at the suggestion of any talk of possible peace, or return to normal conditions, and while there is no prospect of the awful slaughter and ruination of three quarters of the most civilized portion of the world coming to an early end, the very prospect of such a blessing fills us with alarm. So much is our present prosperity built up on the disasters of our neighbors. It is a situation of which we have no cause to be proud. It is also a situation that has great dangers. Outside of an early end of the war and a collapse of the structure of production, profits and speculation that we have built on it, must come some time, the after effects of the Europe's calamity, and to think that we will not have to bear some of its burdens is absurd. The passage from peace to war caused a world wide dislocation; the passage from war to peace will likewise dis-

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locate business and finances, but as regards the latter it will be one which we can better undergo than the rest of the world.

Railroad Prosperity Necessary.

Every past revival from a period of depression in this country has been made under the leadership of the railroad through the powerful influence of large expenditures for extensions, improvements and equipment. While there is some improvement in the position of our railroads, the future is far from promising for any great things in this direction, and we are old fashioned enough to believe that no permanent prosperity can exist, with this, our most important industry, not in an absolutely sound and prosperous condition. At present one sixth of our railroad lines are in hands of receivers.

The description of the situation which we read in the press papers, to the effect that railroads are suffering from prosperity just now because their tracks are blocked with loaded cars which cannot be emptied fast enough, is a mistaken one. They are suffering, as also are the shippers, from the onerous regulations imposed upon them, depriving them of sufficient funds and credit to provide in the past for adequate terminal facilities. Were the railroads receiving proper compensation, the outlook would be far more cheerful for the long future.

Neither do we see until great changes take place how our railroads can obtain any great measure of prosperity.

If the revival of business now under way should develop traffic and earnings sufficient to reinstate their securities to popular favor, the way would

be open to raise money, but there are so many other more promising investments not hampered by wage fixing by arbitration and rate fixing by public commission, war loans to mention only one instance, that the outlook is not promising for railroad finance and prosperity.

Congress and the Coming Presidential Election.

A session of Congress is approaching and it is sure to be a hot one and will precede a presidential election in which many momentous questions of policy, national and international will be fought out and decided. Such an atmosphere will not be favorable for expansion and confidence as far as our home trade is concerned, and it is on this home trade situation that our safest foundations in 1916 must be laid.

Stupendous Economic Disturbances Must Follow End of War.

We do not believe as so many do, that with peace we are to have in this country a continuance of the great prosperity now being enjoyed. A new status of international trade, and to a great extent a new order of things, must be met in this country by new tariff measures, and an adjustment of interest rates and labor conditions. They cannot be solved by mere theories. Dumping of cheap goods will mark the mobilization of a world wide trade war to follow military peace.

Acute Foreign Competition a Certainty.

England's free trade policy cannot be continued, already England has made many changes in the tariff rates

According to a recent statement of The London Morning Post

EDITORIAL.

Germany is subsidizing its export industries for the express purpose of accumulating reserves for the future dumping process. England, it is argued, can offset such a course by making favorable commercial treaties with the countries now fighting with her against Germany and Austria. An economic alliance for the permanent exclusion of German and Austrian trade with the Allies is not considered probable by the writer of the article, but he points out that the Allies will have closer relations after the war than they ever had before and that this condition will continue for years.

"In Germany," says the article, "the business interests expect that with a triumph of German arms the Government will not only force from the defeated Allies an enormous indemnity but will see to it that no 'economic alliance' that can injure German trade is possible. If she is in a position to do so Germany will obtain commercial treaties with all such as she obtained from Russia in 1905, with brusque persuasion.

"On the other hand those who are in a position to see the development of disposition among the Allies on this subject say that Germany's military and economic position when she seeks peace will make a great difference in the foreign commercial policies of all the nations. The angry threats of an 'economic alliance' that will iso-

late Germany for all time have generally given way to cooler judgment in England, in Russia, and in France. The leaders who will probably have most to do with forming the new trade arrangements, in Russia and in France, make the intelligent admission that their country's industries will handicap themselves greatly if certain lines of commercial intercourse between them and Germany are not resumed after the war. If sheer exhaustion should bring the war to an end, with nobody satisfied, popular demand might force an economic isolation of Germany."

Stability not Possible Under Present Conditions.

To again refer to the situation existing at present:

It cannot be too strongly reiterated that nothing can be stable here when the reverse of those conditions exists in the rest of the world. American profits today depend essentially upon the maintenance of an export balance which has sprung up over night and which is doubling itself almost under our very eyes. Other countries find themselves practically obliged to trade here and are doing so. On many classes of goods we are able almost to fix our own prices without fear of having them rejected. Certainly this state of affairs in the commercial world, however widespread it may be, is neither normal in the true sense of that word nor is it likely to be permanent.

Effect of Fifteen Months of the War on Metals.

	1914			1915		
	10 days			After		
	One month before war, July 1.	after war declared, Aug. 10.	6 mos. later, Jan. 1.	9 mos. later, May 1.	1 year later, Aug. 1.	15 mos. of war, Nov. 1.
Copper—						
Lake	13.87 ¹ / ₂	12.62 ¹ / ₂	13.10	18.75	18.37 ¹ / ₂	18.00
Electrolytic ...	13.55	12.45	12.85	18.50	18.12 ¹ / ₂	18.00
Casting	13.35	12.25	12.75	17.50	17.00	17.37 ¹ / ₂
Tin	31.15	65.00	33.25	40.25	35.00	36.00
Lead (St. Louis) .	3.75	3.70	3.60	4.10	5.15	4.82 ¹ / ₂
Spelter (St. Louis)	4.85	5.12 ¹ / ₂	5.55	13.75	17.87 ¹ / ₂	14.37 ¹ / ₂
Antimony, (Chin. & Jap.)	5.50	17.50	13.25	34.00	34.75	36.00
Aluminum, (98 to 99%) ..	17.62 ¹ / ₂	20.50	19.12 ¹ / ₂	19.37 ¹ / ₂	32.50	57.00

Extreme Fluctuations During the Past Fifteen Months of War. July 31, 1914 to November 1, 1915.

	High.	Low.	Average.
Copper—			
Lake	20.62 ¹ / ₂	11.30	15.62
Electrolytic	20.50	11.10	15.40
Casting	19.62 ¹ / ₂	11.00	14.86 ¹ / ₂
Tin	65.00	28.50	37.77
Lead (St. Louis)	7.50	3.35	4.16
Spelter (St. Louis)	27.00	4.60	10.82
Antimony (Chinese and Japanese) ...	38.00	5.30	22.58
Aluminum (98 to 99%)	57.00	17.37 ¹ / ₂	26.04

High, Low and Average Prices for the 10 Years Preceding Declaration of War.

	High.	Low.	Average.
Copper—			
Lake	26.25	12.12 ¹ / ₂	15.55
Electrolytic	26.00	12.00	15.36 ¹ / ₂
Casting	25.25	11.87 ¹ / ₂	15.11
Tin	51.05	25.75	36.48
Lead (St. Louis)	6.95	3.47 ¹ / ₂	4.55
Spelter (St. Louis)	7.50	4.00	5.64
Antimony (Chinese and Japanese) ...	24.12 ¹ / ₂	6.00	*8.52
Aluminum (98 to 99%)	28.00	18.50	†22.53

* For seven years. † For five years.

BUSINESS TRENDS.

NEW INCORPORATIONS MAKE GOOD SHOWING.

The output of charters during October made a good showing. Papers filed in the Eastern States for companies with \$1,000,000 capital or over represented \$208,695,000. This compares with \$35,487,500 in October last year. The September total was \$286,625,000, but these figures included the new \$240,000,000 E. I. du Pont de Nemours Company, so that the showing from an all around viewpoint was unfavorable. All things considered, therefore, the past month's returns are the most satisfactory in years. Companies incorporated in all States, including those of the East, amounted to \$266,701,000. This compares with \$70,124,500 in October last year. In September the figures were \$323,950,000.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. ..	\$51,150,000	\$120,050,000	\$332,450,000
Feb. ..	53,950,000	51,575,000	191,500,000
Mar. ..	70,050,000	57,700,000	166,030,000
April .	32,200,000	136,185,000	198,718,000
May ..	78,950,000	62,700,000	172,200,000
June ..	181,247,100	70,050,000	79,550,000
July ..	71,100,000	68,700,000	83,650,000
Aug. ..	67,100,000	50,600,000	63,500,000
Sept. .	286,625,000	54,800,000	42,750,000
Oct. ..	208,695,000	35,487,500	70,856,300
10 m. \$	1,172,167,100	775,547,500	1,504,854,000
Nov. .		81,650,000	77,800,000
Dec. .		105,450,000	55,250,000
Year ..		\$894,947,500	1,534,254,300

COMMERCIAL FAILURES INCREASE.

Some increase in the country's business mortality is not unusual at this period of the year, and no special significance attaches to the rise in the commercial death rate during October. Total insolvencies, as reported by R. G. Dun & Company, numbered 1,599, or 185 more than in the previous month and the largest since July, while several defaults of exceptional size helped to swell the liabilities to \$25,522,380, as against \$16,208,070 in September and an average of

about \$19,000,000 for the four months prior to that time. When comparison is made with October, 1914, however, the showing is favorable, not only from a numerical standpoint, but also in respect to the aggregate indebtedness. Then 1,686 concerns failed, owing \$29,702,178; in 1913 only 1,434 suspensions occurred and the amount involved was \$20,245,456, though in that year practically 200 more reverses were reported in October than in September.

The growth in the number of failures last month was mainly in manufacturing lines, 407 such defaults for \$8,637,922 contrasting with but 298 for \$4,739,110 in September. On the other hand, in October, a year ago, there were 435 insolvent manufacturing firms and the total debts of these reached almost \$13,000,000, while in 1913 the number was 422 and the aggregate obligations about \$10,500,000. Only 41 more trading houses were forced to suspend in October than in September 1,094 against 1,053—and the liabilities were but slightly larger, \$9,955,202 as compared with \$9,631,735 in the earlier period. Last year there were 1,176 similar reverses for \$11,534,606, and 954 in 1913 for \$8,431,721. Among agents, brokers and firms not properly included in either manufacturing or trading, the mortality was unusually high, there being no less than 98 failures in this month for \$6,929,256, as against 63 for only \$1,838,000 in September, 75 for \$5,374,507 in October, last year, and 58 in 1913, when the sum of money involved was but \$1,359,151.

OCTOBER BUILDING SHOWS GAIN.

With only a little more than half the normal number of cities of the country making returns thus early in the month, building expenditures for the month of October aggregate \$43,650,565, a gain of 45 per cent. over October a year ago, this comparing with a gain of 30.5 per cent, in September but following a decrease of 21 per cent in October, 1914, from the like month of the preceding year. Of the eighty-three cities reporting, sixty-three, or over three fourths, show gains over October a year ago. For ten months of the year 1915 expenditures are only 2.6 per cent behind a year ago, and the slight decrease bids fair to be converted into an increase before the year ends.

BUSINESS TRENDS.

OUR FOREIGN TRADE.

That the value of imports, which has been seriously impaired by the European war, is gradually increasing is the indication of the figures for the month of August, just published by the Department of Commerce at Washington. The statistics for the first eight months of the current year, as compared with the same period of 1914, show a heavy loss in most of the items of import affected by the war. The comparative figures for the month of August, on the contrary, record a growth of imports in many directions over the same figures of a year ago.

Our foreign trade for August and eight months compares as follows:

	1915.	1914.
August.		
Exports	\$260,971,615	\$110,367,494
Imports	141,830,202	129,767,890

Excess of exports \$120,246,133 *\$19,400,396

* Excess of imports.

Eight months ended August 31st:

	1915.	1914.
Exports	\$2,231,754,730	\$1,311,349,656
Imports	1,150,884,760	1,270,361,263
Ex. of exports	\$1,080,869,970	\$40,988,393

HEAVY INCREASE IN STOCK TRANSACTIONS.

The outlook for the market is generally favorable. Liquidation in some of the specialties is still incomplete, but the selling movement of the past two or three weeks has strengthened the technical position of the market, and the diversion of attention to the railroads and better class of industrials has inaugurated a new and safer buying movement. The prospect for the last two classes of securities continues satisfactory, and on pronounced reactions such securities should prove a good purchase. There could be no sounder evidence of the underlying strength of the market than the spectacle of the war shares declining with the rails and coppers uniformly strong. Some of the war stocks may have been unjustly snubbed, but the preference which is being shown for railroad stocks which produce liberal income is a pretty good answer to the critics who some months ago questioned the basic soundness of the whole market.

The volume of stock transactions on the

New York Stock Exchange during the month of October reached a total of 26,604,702 shares, against 18,558,765 shares in September and 7,363,013 shares in October, 1913. The par value of bonds sold during October amounted to \$104,122,500 as compared with \$81,171,000 in September and \$40,837,500 in October, 1913. Comparisons with the corresponding period of last year cannot be made, as there was no trading on the Stock Exchange during the month of October. The total stock transactions for the ten months of 1915 is thus brought up to 141,948,581 shares, against 72,092,430 shares for the corresponding period of 1913. Bond sales for the same period aggregate \$706,407,200, as compared with \$422,822,700 in 1913.

BANK CLEARINGS REACH RECORD TOTAL.

Never before in the history of the country were bank clearings so heavy as they were in the month of October, the total for the month being \$20,052,233,222 as reported by Bradstreet's Journal. Arrayed alongside of those other months of remarkable totals, viz., October of 1912 and January of 1906, 1913 and 1914, the sum reported for October looms conspicuously large, the best previous total \$17,002,000,000 for October, 1912, being surpassed to the extent of almost 18 per cent. Even with New York excluded, the total \$7,312,554,570 for the rest of the country is of record proportions, and the showing made by the metropolis, reflecting, as it does, clearings of \$12,739,678,652, sets up a new high mark, and one that displaces the previous record of \$11,249,075,000 made in January of 1910. Philadelphia, Kansas City, Cleveland, Detroit, Omaha, Denver, Portland, Ore., and Richmond also exhibit unprecedented totals. The ratio of increase over September exceeds 31 per cent, while as compared with October of last year the increment is 72.4 per cent. Of course, the subnormal conditions prevailing in financial centers at this time last year render the present comparison somewhat misleading, but on the other hand, the latest total exceeds that of October, 1913, by about 30 per cent, and, as already noted, the previous peak point attained in October, 1912, is surpassed by approximately 18 per cent.

Steel Industry Under Record Pressure.

Output Exceeds Estimated Capacity—Orders Piling Up—Prices Running Away.

Events have moved very rapidly in the steel trade. It was only four months ago that the Steel and Metal Digest printed an article "Prosperity for Steel Industry Assured" and from the viewpoint of the moment the headline was more of a prediction than the record of an accomplishment, for capacity operations were then only being approached. It was, indeed, but six months from the time when the percentage of steel making capacity actually engaged was by far the lowest on record.

To-day it is to be recorded that mills are breaking all previous production records, yet orders are piling up and the bookings exceed the shipments by from 50 to 75%. Steel prices are soaring. They have passed the highest points reached in the 1909 and 1912 movements and are making rapidly for the level attained in the 1905-6-7 movement.

How suddenly the high pressure has been thrust upon the steel industry is shown by the fact that it was felt necessary to prove in our article of four months ago that prosperity for the steel industry really was assured at that time. Among arguments used was that there is a wide gap between minor and major movements in the steel market, and that what had already occurred, in increase in demand and in advanced prices, was in excess of anything that had ever occurred in a minor movement, making it evident that a major movement was in progress, comparable to 1899, 1902, 1905-6, 1909 or 1912. Now the movement has progressed so far that there is reason to expect it to outrank all those movements in intensity.

At the beginning of November the production of pig iron is not only 10% in excess of the best rate previously attained, early in 1913, but it is in excess of estimates of capacity made until a few months ago in very well posted quarters. Estimates then were that the pig iron making capacity, at ordinary prices, would be found to be about 35,000,000 tons a year, although with high prices offered for pig iron and

not too high prices asked for raw material the output could be swelled about a million tons, by the bringing in of the less well positioned furnaces. The actual output now, however, is at the rate of 37,500,000 tons a year. There remains a few steel works furnaces idle, and quite a number of merchant furnaces. Merchant furnaces are not producing as much pig iron as they have in several periods in the past. The steel works furnaces are producing correspondingly more, and with the large tonnages of scrap the open-hearth steel works are consuming the production of steel ingots is enormous, probably in excess of 40,000,000 tons a year, against a best rate previously attained of between 32,000,000 and 33,000,000 tons.

Orders are piling up in the steel mills very rapidly. Much of the business is not invited; it comes in the form of specifications against contracts made earlier in the year, to expire December 31st, and at prices far below those now ruling. Even at existing prices, as rapidly advanced in the past few weeks, the mills as a rule are not seeking orders; the orders are seeking the producers.

The war orders for steel are not responsible for any very large part of the present output, probably not more than about 25%. Steel production last December was estimated at less than 35% of the capacity, and the current production is in excess of what was then estimated as the capacity. It is probably perfectly sane to assert that the production of last December was not more than 30% of the production last month. To make a comparison extremely conservative at all points, if none of the production last December was war steel, and that was not the case, and if 30% of the present production is war steel, an excessive estimate, then the production for other purposes has increased from 30 units to 70 units, or 133%.

The war has caused part of the present export demand from neutral countries, sending the orders to us instead of to England, Germany, France and Belgium, but the

total demand of neutral countries is far below what it has been in times of peace. Domestic consuming industries are taking steel at a fairly high rate, and their prosperity may from one viewpoint be attributed to the war, but no one can possibly show that if the war had not started the United States would not now be more prosperous than it is. The moderate industrial depression that began in 1913 was bound to end some time. The steel industry saw a slight revival in January and February, 1914, and another started in June and July. There were observers then who thought a major movement in the steel industry was then beginning. With no war it might have proceeded apace, causing the steel industry to find itself fairly prosperous by the end of 1914. That the industry was more stagnant in the two closing months of 1914 than ever before in its history was certainly due to the war, hence it is impossible to attribute all of the subsequent rebound to the war's influence.

In 1907, eight years ago, pig iron production reached a rate of 28,000,000 tons a year. At 37,500,000 tons now there is an increase of one-third. Sometimes pig iron

production has doubled in eight years. And for several decades, through 1907, it doubled on an average once in every ten years. The mills and furnaces grew under such great pressure, therefore, may be attributed to the iron and steel industry failing to grow rapidly enough to keep pace with the growing requirements of the country. An increase of one-third in eight years is less than a rate of increasing output in ten years. Why should not the country's requirements grow by one-half in ten years when previously they had doubled every ten years?

Steel prices are running away, as indicated at more length in the market section of this issue. That is due to a combination of influences, the extremely heavy demand for material, the fact that producers have just emerged from a trying spell of profitless times and the general upsetting of ideas of values caused by the war. Still there is a regular runaway market in steel has been well established by events of the past two or three weeks. There has been no parallel to this price movement since 1899 and the market of that year has since been commonly referred to as a runaway.

Pig Iron Making Capacity.

Higher Than Recently Estimated, and Easily 38,000,000 Tons a Year.

A fact much discussed in coke circles recently is that blast furnaces are in many instances, perhaps the majority, consuming more coke than ever before. The scarcity of Connellsville coke that began developing in the middle of October has been attributed in part to this fact, resulting in operators having requirement contracts being obligated to ship considerably more coke to their customers than they had anticipated. From this fact, as well as certain comparisons that can be made on the basis of the "Iron Age" monthly blast furnace report, it becomes established that the blast furnace capacity of the United States is larger than has lately been assumed. It has become well recognized that it is idle to attempt to estimate the total pig iron making capacity of the country by adding up the estimated capacities of individual furnaces as listed in the iron and steel works directory, since there are furnaces managers rate their stacks in terms of

nominal rather than actual proved capacity. It has become the custom, therefore, in making estimates of total blast furnace capacity, to take as a basis the actual performance at the latest period in which there was heavy production, and make allowances for furnaces then idle and furnaces soon completed. By such means it has been possible to keep fairly good track of our blast furnace capacity through good times and bad. It now develops, however, that the condition of old blast furnaces breaking their former records makes the present capacity greater than was supposed by 2,000,000 or 3,000,000 tons a year, or possibly even more.

Prior to the present movement, the maximum rate of pig iron output was attained in February, 1913 when the output according to the Iron Age report plus our estimate of charcoal pig iron production was at the rate of 34,000,000 tons annually. The output of the 300 coke and anthracite run-

naces was at the rate of 308 tons per furnace per day. The rate of output reported for November 1st is equivalent to 369 tons per furnace per day. There were 276 coke and anthracite furnaces making 101,819 tons a day, against 300 stacks in February, 1913, making 92,369 tons a day. The rate of production November 1st, allowing for charcoal iron output, was 37,500,000 tons a year. The Iron Age carried on its list 140 furnaces that were idle the first of this month. It would not be right to estimate the capacity of these 140 furnaces and add the estimate to the actual rate of production now reached in order to obtain an estimate of the total capacity, for some of the furnaces listed will probably never produce in any kind of times, while there must in the long run be an average of say 5% of the total operative furnaces idle for relining and other contingencies. We can, however, count into the reckoning some 43 furnaces idle at present but active in February, 1913, with 3,000,000 tons annual capacity, giving 40,500,000 tons, and then make allowances. The first allowance to be made is by reason of the fact that furnaces operate unusually well in October, on account of the weather, and from a careful study of various records we estimate the output over a full twelvemonth

at 3% less than the rate of output in October. Taking at 5% the capacity that must, on an average, be idle for relining, etc., and assuming that conditions in February, 1913, were such that only two-fifths as many furnaces as usual were idle for relining, etc., we have another 3% to deduct. Subtracting this from 40,500,000 tons we have 38,000,000 tons as our present estimate of what the existing blast furnaces could do, year after year, given really profitable prices for their product. If the unexpected condition should develop of fancy prices being offered for pig iron, yet with labor, ore and coke obtainable at relatively prices, various poorly positioned furnaces could operate. Such a condition is quite improbable. As the actual production rate at present is 37,500,000 tons one may conclude that without the completion of new furnaces, of which a few are on the way, the United States can make pig iron, over a full period of a year or two years, at say a million tons a year more than the present rate.

Until the recent remarkable performance of the blast furnaces, there was good reason to estimate the capacity at about 35,000,000 tons or possibly 36,000,000 tons. There was really no tangible reason to expect more.

RAILROAD EARNINGS.

Railroad earnings per mile of road, of roads having annual operating revenues above \$1,000,000, this being about 229,000 miles or about 90% of the total steam railway mileage; compiled by the Bureau of Railway Economics from duplicates of reports furnished the Interstate Commerce Commission.

	1913-14			1914-15			1915-16		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	\$1,183	\$837	\$346	\$1,127	\$786	\$341	\$1,130	\$750	\$380
August ..	1,244	856	388	1,175	789	386			
September	1,257	854	403	1,182	781	401			
October ..	1,314	891	423	1,169	786	383			
November	1,180	884	297	1,023	732	292			
December.	1,116	821	296	990	728	262			
January ..	1,021	795	226	936	716	220			
February ..	914	746	168	897	678	219			
March ...	1,091	801	290	1,012	720	292			
April	1,038	782	256	1,010	722	288			
May	1,047	800	247	1,040	732	308			
June ..	1,097	789	308	1,090	730	360			

Our Imports and Exports of Merchandise.

Two Nine Months' Periods Compared—Enormous Gains in Exports.

September was the biggest month in the history of the foreign trade of the U. S. Exports amounted to more than \$300,000,000, as compared with \$261,000,000 in August this year, and \$156,000,000 in September, 1914. For the nine months ended September last the exports totalled \$2,532,485,167, compared with \$1,467,401,989 in the same period of 1914.

The balance of trade in favor of the United States for the nine months of 1914 was a little in excess of \$57,000,000, exports aggregating \$1,467,401,989, and imports \$1,410,071,874. The balance of trade in favor of this country for the nine months ended September last is \$1,230,390,381. Exports were valued at \$2,532,485,167; imports, \$1,302,094,786.

Comparing the two nine-month periods and also September of this year with the corresponding month of 1914 increases are

shown in every important item in the export figures. Exports in foodstuffs have more than doubled and the same is true of manufactures ready for consumption.

For example, crude materials for use in manufacturing increased from \$359,000,000 in the nine months of 1914 to \$418,763,536 in the corresponding period of this year; exports of foodstuffs in crude condition and food animals increased from \$151,000,000 to \$322,000,000; foodstuffs partly or wholly manufactured increased from \$198,000,000 to \$450,000,000; manufactures for further use in manufacturing from \$262,000,000 to \$329,000,000, and manufactures ready for consumption from \$465,000,000 to \$876,000,000.

Here is presented a table which shows the July exports of twelve classifications of war materials. Comparison is made with a year before:

	1915	1914.	Increase.
Aeroplanes	666,981	\$ 1,690	\$ 665,291
Auto trucks	4,387,193	124,016	4,263,177
Barbed wire	1,161,196	210,239	950,957
Cartridges	2,284,540	154,080	2,130,460
Explosives	6,967,946	26,336	6,940,710
Firearms	693,413	208,644	484,769
Gunpowder	5,296,118	16,821	5,279,297
Horses	8,592,855	96,706	8,496,149
Horseshoes	716,404	3,521	712,883
Motorcycles	398,792	40,560	358,232
Rubber mfrs.	2,358,873	601,990	2,756,883
Wool mfrs.	1,986,046	296,940	1,689,106
Total	\$35,509,457	\$1,861,543	\$33,647,914

How the actual totals of these exports compared, month by month, can be seen from the following table, which also presents the movement of a year ago:

	1915-14.	1914-13.	Increase
September	\$ 3,798,717	\$2,785,787	\$ 1,012,839
October	10,193,634	3,219,670	6,973,964
November	14,923,059	2,368,102	12,554,957
December	20,550,682	3,341,207	17,209,495
January	20,163,660	2,300,145	17,863,515
February	21,785,976	2,438,851	18,347,125
March	22,192,541	3,449,607	18,742,934
April	23,766,172	3,764,202	20,001,970
May	28,694,062	2,902,040	25,792,022
June	36,966,870	2,921,989	34,044,971
July	43,976,744	2,970,242	41,706,402
August	35,509,457	1,861,543	33,647,914
Total	\$283,521,974	\$34,323,476	\$250,198,380

OUR IMPORTS AND EXPORTS OF MERCHANDISE.

(Seven Months Ending July)

Countries.	— Imports —			— Exports —		
	1913.	1914.	1915.	1913.	1914.	1915.
Europe.						
Austria-Hungary ..	\$10,717,938	\$11,921,651	\$4,427,107	\$12,337,443	\$12,798,495	\$36,636
Azores, and Madeira						
Islands	219,629	257,041	217,443	142,728	140,936	54,932
Belgium	25,592,727	25,855,548	1,695,066	34,036,529	32,263,868	12,566,506
Bulgaria	274,881	63,955	239,723	46,389	263,855	10,270
Denmark	1,193,941	2,046,968	1,238,739	11,851,395	8,687,771	49,336,171
Finland	71,259	86,827	96,969	2,053,358	2,127,639	69,634
France	71,359,904	70,407,169	39,455,431	61,973,510	68,187,004	304,523,380
Germany	102,430,868	110,487,855	36,094,699	166,123,178	155,970,192	11,649,767
Gibraltar	3,010	9,247	272	290,508	525,379	1,921,136
Greece	1,450,766	2,045,408	2,416,074	712,507	831,261	16,902,731
Iceland and Faroe						
Islands	1,019	45	530	20,172	4,163	79,446
Italy	31,954,626	33,541,640	31,801,721	42,913,704	38,126,927	134,639,553
Malta, Gozo, etc...	12,197	12,384	22,709	382,166	113,014	752,378
Netherlands	22,941,515	20,972,094	15,440,148	73,768,591	67,147,915	101,957,438
Norway	4,530,997	5,642,838	3,957,792	4,981,755	4,623,600	26,221,674
Portugal	3,849,703	3,531,421	3,060,085	2,928,905	3,037,474	4,311,721
Roumania	40,489	386,512	125	2,505,102	1,205,958	349,385
Russia in Europe..	12,872,617	11,355,436	472,249	12,428,539	16,897,403	48,926,565
Serbia, Montenegro, and Albania	316,779	710,723	.....	2,420	7,488	921,580
Spain	12,871,495	12,679,340	9,434,192	15,268,727	13,866,030	26,000,107
Sweden	6,888,590	6,626,576	6,345,918	6,878,005	7,672,489	57,445,267
Switzerland	12,666,081	13,483,544	10,694,799	518,211	711,778	3,008,599
Turkey in Europe.	7,251,007	5,565,419	2,933,472	1,336,638	1,247,382	5,652
United Kingdom:						
England	132,009,527	150,619,250	122,282,023	261,707,282	271,491,953	610,615,263
Scotland	13,481,310	15,874,974	11,484,473	22,816,779	19,751,296	35,584,580
Ireland	9,905,693	10,342,292	9,435,420	7,550,620	7,345,078	14,307,360
Total United Kingdom ...	155,396,530	176,836,516	143,201,916	292,074,681	298,583,327	660,507,203
Total Europe..	484,908,568	514,526,157	313,247,179	745,575,161	735,046,348	1,462,197,731
Total N. America.	224,742,110	270,263,479	308,292,778	362,714,424	285,542,293	283,865,113
Total S. America.	110,625,364	142,352,258	177,168,203	85,920,039	60,091,209	73,145,633
Total Asia	159,884,655	170,278,003	152,579,084	72,639,962	58,021,360	79,974,187
Total Oceania	19,878,426	28,813,273	36,222,622	44,308,330	46,629,316	52,735,764
Total Africa	18,609,552	14,360,203	21,544,692	16,115,221	15,651,636	18,864,687
Grand Total ...	1,018,648,675	1,140,593,373	1,009,054,558	1,327,273,137	1,200,982,162	1,970,783,115

Miscellaneous exports increased in value from \$5,550,000 to nearly \$97,000,000. Miscellaneous exports in September last were valued at more than \$10,200,264, as compared with a little more than \$5,000,000 in the corresponding month of 1914. This increase was due to the exportation of horses to the value of \$8,032,467, of mules to the value of nearly \$2,000,000 and seeds valued at nearly \$150,000.

Imports are showing a tendency to increase, although not to an extent to give assurance that there will be any substantial advances in the customs revenues of the Government. Comparing the value of imports in the nine months ended with September, 1914, with the corresponding period this year there was a decline of more than \$107,000,000.

In the nine months of 1914 imports were valued at \$1,410,071,874; in the nine months of this year they represented a value of \$1,302,094,786. There were increases in some items of imports. For example, the

importations of crude materials for use in manufacturing increased from \$482,000,000 in the nine months of 1914 to \$491,652,388 in the corresponding period of this year. There also was an increase in the importation of foodstuffs partly or wholly manufactured, from \$209,000,000 to \$225,000,000. Importation of manufactures for further use in industry dropped from \$217,000,000 to \$19,000,000, and manufactures ready for consumption dropped from \$315,000,000 to \$215,000,000.

Exports of war materials from the United States in August, for which completed figures have just been received from the Department of Commerce, were \$35,509,457, a total over \$8,000,000 below the total of July, but \$33,600,000 in excess of the month of August, 1914. Of horses shipped, the value was \$8,592,855, an increase of \$8,496,149, gunpowder \$5,296,118, an increase of \$5,279,297, and of auto trucks, \$4,387,193, an increase of \$4,263,177 over 1914.

British Iron and Steel Exports.

Iron and steel exports from the United Kingdom in September were the smallest for any month since last March being 249,501 gross tons, or at the rate of 3,000,000 tons a year. British exports have been as follows:

1912	4,963,112
1913	5,050,919
1914	3,977,468

Exports in the first eight months of this year were at the rate of 5,180,000 tons annually, while as just noted the September exports were at the rate of 3,000,000 tons. The exports early in the year were relatively light, while the July exports were extremely heavy.

American exports have always, until very lately, been much below British exports, never reaching, though closely approaching 3,000,000 tons in a year, but being above 2,000,000 tons only in three years. The first month in which American exports exceeded British was last June, 3,531,102 tons to 2,721,195 tons, and a still greater excess occurred in August, 4,011,000 tons against 2,955,000 tons. We are still to see a month in which our exports shall exceed the best British record,

as this would require considerably over 400,000 tons.

The war has increased our exports, while it has decreased the British exports. Our exports are largely of war material, while the British exports are not. The British statistics of exports do not of course, include material which is moved out of the country for British use in the war, while on the other hand it does include material sold to France for ultimate conversion into war material. There is not much of this, however, the chief item being say 25,000 to 30,000 tons a month of steel rounds exported to France for making shells.

If a comparison were made of British and American exports to neutral countries, of course including with British exports the exports to British colonies, our exports would not make a particularly good showing. They would certainly be below the British, though they might be almost equal, perhaps, in some former years. In the past few years they would be the same with the United Kingdom. It is this question of our exports to neutral countries which is really the important one. So far the British exports were lower

August than in July, and lower in September than in August, while it is well known our exports to neutral countries have lately been increasing, it is evident that the tide is strongly in our favor, with little chance of increased competition from England.

There is no competition from Belgium and Germany, other large exporting countries.

British exports have been as follows, according to the Board of Trade returns, in tons of 2,240 pounds:

Comparison of British Iron and Steel Exports.

1914—	Pig Iron.	Rails.	Tin Plate.	Total.*	1915—	Pig Iron.	Rails.	Tin Plate.	Total.*
Jan. ..	82,182	57,904	43,164	467,449	Jan. ...	21,138	24,411	29,216	230,204
Feb. ..	59,832	35,484	41,744	353,861	Feb. ..	21,934	14,877	25,101	198,804
Mar. ..	92,364	40,207	40,863	414,902	Mar. ..	20,172	17,572	36,170	239,342
April ..	93,396	30,682	44,296	394,535	Apr. ..	35,209	21,602	40,135	264,244
May ..	95,037	56,881	48,628	437,648	May ..	29,342	21,776	33,727	267,524
June ..	88,569	39,700	36,565	366,066	June ..	39,127	23,728	33,986	272,195
July ..	74,617	43,133	47,237	385,301	July ..	78,370	33,224	39,528	351,984
Aug. ..	28,342	22,763	21,414	211,605	Aug. ...	73,283	32,962	22,572	295,260
Sept. ..	37,793	39,185	23,440	228,992	Sept. ...	53,068	15,800	20,002	249,501
Oct. ..	47,188	37,005	26,950	263,834					
Nov. ...	49,666	16,181	30,942	240,617					
Dec. ..	31,705	16,315	30,254	212,667					
Year ..	90,405	435,440	435,497	3,977,468					

* Includes scrap, pig iron, rolled iron and steel, cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

Labor Supply and Prospects.

Serious labor shortages are now being reported from various industrial centers. Conditions can hardly be described as acute thus far, but it is quite certain that the labor supply is not altogether adequate for the present industrial activity. The shortage is not in a few spots, but is fairly general, in the coke regions, at blast furnaces and in steel mills.

Having this situation now one must consider that it will grow worse, in all likelihood, from two influences, first, an increase in general industrial activity; second, a continuance of the failure of immigration to increase our population as it has in the past, prior to the war. We have already shown, by statistics of immigration and passenger movement, that a deficit in our population movement occurred steadily through July, the normal increase in our population having been interrupted. Now come the statistics for August, which show that the conditions were particularly adverse in August. In the preceding twelve-month there was an increase in population due to the movement of persons into and out of the country, but an increase much smaller than the normal. Now comes the August figures, showing an actual decrease in population during month.

Taking all classes of persons, immigrant and non-immigrant and emigrant and non-emigrant aliens and arrivals and departures of citizens, the increases in population caused by the movement of persons into and out of the country have been as follows:

Twelve months ended June 30th,

1913	754,205
1914	687,065
1915	117,237

Assuming the years 1913 and 1914 to represent normal, an average of 720,635 more persons coming into the country than going out, the twelve months ended June, 1915, with only 117,237, represented in substance a deficiency of 603,398 persons. That, of course, is a permanent condition, until made up. Each month that comes with an increase in population less than the normal increase adds to the deficiency.

At 720,635 a year as normal, there is 60,000 per month. July showed an increase of 14,994, so there was an additional deficiency of 45,006. August shows not a small increase, but an actual decrease of 15,128, so that August's contribution to the deficiency is 75,128, making the total deficiency July 1,

1914 to September 1, 1915, 723,532. Thus monthly the situation grows more serious as to there being a labor supply adequate to our industrial expansion.

The August figures in detail may be arranged as follows:

Aliens.

Admitted

Immigrant	21,949
Non-immigrant	5,164

Total admitted 27,113

Departed:

Emigrant	20,294
Non-emigrant	12,444

Total departed 32,738

Excess departures 14,324

Citizens.

Arrived	9,506
Departed	10,000

Excess departures 804

Excess of Departures.

Aliens	14,324
Citizens	804

Total 15,128

REVIVAL OF THE MINING INDUSTRY.

Unless all signs are fallacious, the mining industry of the United States is experiencing a real revival. This is not to say that it has been inactive or sick, for there has been scarcely a year during the last decade when there has not been an increase in the production of iron, copper, lead and zinc; but ever since 1907 there has been a sluggishness in gold and silver mining, an absence of interest in the development of new mines and an alarming decline in prospecting. Moreover, the troubles in Mexico during the last three or four years brought mining in that country to a standstill, seriously affecting the interests of American investors and manufacturers, engineers and operators.

Several things have combined to bring about a new and favorable turn in the mining industry. In the first place the huge demand and consequent high prices for copper, lead, zinc, antimony and quicksilver, due to the war, greatly stimulated the mining of those metals and required the

services of a good many more men and the addition of a good deal of new machinery. Take the case of zinc smelting, for example. A very large sum has been invested in new plants since the beginning of 1911.

Similarly the extraordinary prices commanded by some of the rare ores, such as tungsten and molybdenum, sent hundreds of prospectors into the field to look for them. With tungsten ore selling at \$2,000 and upward per ton the discovery of a deposit yielding a carload or two is enough to give the lucky prospector a fortune. The "Journal" has heard of a case where samples from Mexico were exhibited to an adventurer in Arizona. He recognized them as wolframite and organized an expedition to go into the inferno of bandits and revolutionists to get some of it. His man came back with a cargo of 30 tons that sold for \$75,000. Prizes like that inflame the prospector of '15 as nuggets of gold did the forty-niners. Not one out of a hundred, or a thousand, will be so lucky in tungsten, but some of the 99 or 999 are likely to stumble upon some previously unknown deposits of the other metals that may eventually develop into producing mines.

Other favorable conditions are developing, especially the reawakening of the spirit of speculation among the American people and the hopefulness as to restoration of law and order in Mexico. Engineering & Mining Journal.

DRIFT OF THE BUSINESS AND FINANCIAL TIDES.

(From N. Y. Times Analyst.)

	Percentage of change compared with	
	Month Ago	Year Ago
Cost of living	+ 1.9	+ 8
Bank clearings	+ 7.1	+ 67.6
N. Y. bank loans	+ 9.9	+ 13.7
Commercial failures	+ 4.7	- 12.9
Prices of 50 stocks	+ 5.9	
Pig iron output (Oct.)	+ 10.3	+ 75.7
Steel orders (Sept. 30)	+ 8.3	+ 10.4
Anthracite shipments	+ 3.5	- 11.7
R. R. gross (August)		+ 2.2
Active cotton spindles		
(September)	+ 0.8	+ 3.1

Talks On Bearing Metal.

I. *The Ideal Bearing Metal.

A Bearing Metal that will perform the service requirements of absolutely any machinery and at the same time save more than 60% of initial cost, 50% of installation expense and immense saving in lubrication, surely deserves the serious consideration of every man engaged in building, operating or repairing machinery, regardless of the kind, size or service, for in the end and after all there is but one definite service required of Bearing Metals, that is to take care of the vital parts of all machinery (the bearings) with the minimum of friction and maximum life of the bearings. This cannot be accomplished with metal that is too hard or too soft. One increases friction, heat and wear, while the other may not stand the load-weight or speeds but mash or squeeze out, or disintegrate, so there must be a "happy medium" an ideal evolved from experience, practice and common sense. To reach that ideal is a simply solution, of the mechanical problem of what is the limit of load-weight to which the bearings of any machinery may be carried. The limit that every intelligent mechanic knows and which every builder of machinery figures carefully in his construction plans. That limit cannot exceed 2,500 pounds load-weight to the square inch of bearing metal without disastrous results to the machinery, by either stalling the machine, destroying the bearings, breaking the belts or wrecking the weaker parts of the equipment.

It can be demonstrated by investigation, that 75% of the machinery in operation does not carry as much as 1,500 pounds load-weight to the square inch of metal in the bearings.

Now if a metal in the bearings is strong enough, tough enough and sufficiently cohesive to, carry the load without mashing and at the same time it is soft enough to give the minimum of friction in the bearings, where is the need of a harder metal simply because it is harder and costs more on account of the hardening metals in its composition?

No man can successfully controvert the statement made by America's greatest metallurgist many years ago, the statement

"that metal is best for bearings that is the softest, and at the same time tough enough and cohesive enough to stand the load-weight limit of properly constructed machinery". This same man, after buying millions of dollars worth of hard metal bearings for railway service by which millions of dollars of loss ensued, had found by investigation how much he had been in error, thereupon adopting the other extreme, which wholly converted him and brought forth the above statement.

Perhaps more has been written on the bearing metal subject than any other in connection with metallurgy, and still a large percentage of users are right where we started more than 50 years ago when Isaac Babbitt without experience, precedent, or even metallurgical knowledge, applied the use of tin hardened with antimony and copper to machinery bearings for the purpose of reducing friction caused by the contact of two hard metals, steel and iron. In those days a cast iron bearing, the length of which was the same as the diameter of the shaft, was considered correct mechanical practice, and the now so-called Genuine Babbitt Metal was of course an improvement as it was softer than the iron bearing, and strong enough to stay where they put it, but with improved construction following a fixed rule of making the length of the bearing three times the diameter of the shaft, plays the necessary part in reducing the load-weight limit to the correct basis for carrying the proper metal, and any other mixture is simply a waste of money if it costs more, and a dead loss if it costs less.

The best bearing metal in the world today can be made and sold for less than half the cost of that which enters into the construction and repairs of fully half the machinery used. Practical demonstration will prove that statement and surely the possible saving is worth the trouble of investigation.

* By R. H. Evans of Michigan Smelting & Refining Company.

Topical Talks On Iron.

XXXI. Electricity.

The first important use of electricity in iron and steel works occurred about 1880. An industrial item in a trade publication dated January 21, 1881, states that electric light systems were being installed in the following works in the Pittsburgh district: Edgar Thomson Steel Works, Pennsylvania Tube Works, National Tube Works, Singer, Nimick & Company works and Hussey, Howe & Company works. The installations were not like those of today, being indeed of a type now forgotten, the Brush system. The Brush dynamo supplied current for eight arc lights, in series. If one desired 24 lights, he installed three machines, each with its own circuit. Naturally the electric light came into general vogue very rapidly. It was particularly adaptable, for even if the machinery should break down now and then it was possible to provide alternate machines to fall back upon.

The next important electrical development came much later—the electric crane. There were cranes before the electric, the first of all being the jib crane, operated chiefly by hand power. Not uncommonly a mill would be equipped with a string of them, each with its sphere of influence, so to speak, but often so arranged as to permit passing material down the line, like a bucket brigade. Later came traveling cranes, sometimes operated in part by pneumatic or hydraulic power, and indeed in the late eighties and early nineties hydraulic power was used very largely indeed to perform various operations. Hydraulic charging machinery was brought to a high degree of perfection. The electric traveling crane was early made serviceable and secured general introduction in the decade of the nineties. It can readily be seen that the electric motor lent itself particularly well to the purpose of the traveling crane, it being a simple matter to convey power, in the form of electric current, to the successive moving parts, whereas power in the form of air or water is very difficult to convey in such cases, and water when it has performed its service must be carried away again. The electric traveling cranes therefore jumped into popular favor very rapidly.

With charging and other machinery requiring positive motion electricity carried the day somewhat later because the moving parts had inertia and were not disposed to stop suddenly, the great advantage of hydraulic power being that the machinery was under positive control. In a charging machine the arm would advance precisely so far into the furnace and then stop practically in an instant. Development was necessary to provide equally convenient control for electrical apparatus.

Passing over numerous other and relatively minor applications of electricity in the iron and steel industry one comes to perhaps the most spectacular development, the use of large motors for driving mills. This may seem easy to those who have not reflected upon what preceded, but from the viewpoint of the mill man of a quarter century ago, say in 1890, scarcely anything would have seemed more absurd than an electric drive. There had survived to that year many engines with two foundations of stone, one to carry the cylinder and another to carry the shaft. The plain steam engine, all on one bed plate, controlled by throttling in the steam line, was regarded as the acme of perfection in 1890. There were Corliss engines in service in many plants, but they were regarded as altogether out of place in an iron or steel mill, so delicate and complicated. It was considered a remarkable development when Corliss engines were introduced to drive rolling mills.

It was necessary for the electric motor to be developed for a long time before it became adapted to the driving of rolling mills. For many years there were no motors with sufficiently slow speeds. Even in 1900 the conception of an electric drive would have included a large mass of gearing. Eventually the electric motor was developed to furnish the necessary torque for direct connection to the mill and things were moving so rapidly by that time that it was only a short step to the reversing motor. From a long range view, it was a much further step from the first small electric motor, driving a small finishing mill continuously at high speed to the present day mammoth reversing motor driving a reversing blooming

ing mill, than it was from the most primitive mill engine to the most highly developed Corliss engine, and yet the one step took as many months as the other had taken years.

With the reversing mill motor something is done that could not be done with the steam engine, for the energy that must be absorbed to stop the motor and other moving parts is converted in large part into electric power again and returned to service, in "equalizer" storing energy and giving it off again. It is much the same performance as occurs in electric railways, the Norfolk & Western, for instance, where the energy developed in a freight train going down hill is converted into current which flows into the main line and helps some other freight train up a hill. In the reversing mill this is of the utmost consequence, for the mill costs a great deal of money and the more quickly it is reversed the more money it can make.

OCTOBER IRON OUTPUT LARGEST ON RECORD.

In pig iron history, according to the Iron Age, October goes down as the month in which the country's yield first reached 3,000,000 tons, and the daily output crossed the 100,000-ton mark. When war order tonnages of six figures are bandied about so commonly, it is hard to believe that the year opened with a daily pig iron production of only 51,000 tons, or half what it is now.

At 3,125,491 tons in 31 days, the October pig iron output represents 100,822 tons a day, against 2,853,561 tons, or 95,085 tons a day, in September. On November 1st with 276 furnaces going, the capacity in blast was 101,819 tons a day, against 97,535 tons a day for 268 furnaces on October 1st. Thus, including charcoal iron, our pig iron output

is now at the staggering rate of 37,500,000 tons a year, or 1,500,000 tons more than the rate of one month ago.

IMMIGRATION STATISTICS.

Years mentioned refer to fiscal years ended June 30th. Aliens admitted, both immigrant and non-immigrant, and aliens departed, both emigrant and non-emigrant, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1912	1,017,155	615,292	+401,863
1913	1,427,227	611,924	+815,303
1914	1,403,081	633,805	+769,276
July, 1914 ..	72,015	54,885	+ 17,130
	Admitted.	Departure.	Change.
August	51,231	54,112	- 2,881
September ..	44,624	34,757	+ 9,867
October ...	45,241	39,410	+ 5,831
November ...	35,325	40,748	- 5,423
December ..	27,458	42,525	- 15,067
January, 1915	20,684	31,556	- 10,872
February ..	18,704	14,188	+ 4,516
March	26,335	15,167	+ 11,168
April	31,765	17,670	+ 14,095
May	32,363	17,624	+ 14,739
June	28,499	21,532	- 6,967
Year 1915 ..	434,244	384,174	- 50,070
July	27,097	16,015	- 11,082
August	27,413	41,737	- 14,324
September ..	31,096	33,061	- 1,965

United States citizens arrived and departed, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1913	286,604	347,702	- 61,098
1914	286,586	368,797	- 82,211
1915	239,579	172,412	+ 67,167

Net change in population caused by the movement of both aliens and citizens: 1913, +754,205; 1914, +687,065; 1915, +117,237; July, 1915, +14,994; August, 1915, -15,128; September, 1915, -1,099.

The Iron and Steel Situation.

Pig iron is being made at the rate of 37,500,000 tons a year, against 36,000,000 tons one month ago, 34,000,000 tons in February, 1913, the best previous rate, and 30,000,000 tons in 1913, the best calendar year for production. Steel ingots are being made at a rate probably in excess of 40,000,000 tons, against a trifle over 30,000,000 tons produced in both 1912 and 1913. Direct exports of iron and steel products that are reported by weight were at the rate of 5,000,000 tons a year in August, and at a rate of perhaps 6,000,000 tons a year at present. Deducting for cast iron involved in exports, and making an addition for steel used in exports that are not returned by weight, we estimate that about 25% of the present steel ingot production is for export purposes, direct and indirect. The major portion of the exports is for war purposes, direct or indirect, among the indirect war exports being rails, cars and locomotives. Export trade with neutral countries is fairly large, but probably not up to the best rates of the past.

There is no danger of words exaggerating the pressure exerted upon steel sales offices by would be buyers. Orders are frequently offered with the request that they be entered and the mill advise at convenience the price at which they have been entered. There is danger, however, that the nature of the pressure may be misunderstood. While there is some pressure to obtain material, the chief pressure is exerted to have the mills accept and enter the orders. It is a pressure to buy, to cover for the future, more than it is a pressure to secure material at once. Occasionally, quite frequently, it might even be said, the buyer is inconvenienced by not securing more rapid deliveries than are being made, and from the quantitative viewpoint, the great pressure is to secure protection, to cause the orders to be entered. Buyers are faced by the prospect of increasing consumptive requirements and by the practical certainty that prices will be higher, with deliveries almost unobtainable on orders that may be offered a few months hence. Premiums are being paid for prompt shipment in some instances, but not to as great an extent as prevailed in the winter of 1912-3, and cer-

tainly to a very much less extent than in 1906.

Steel Prices Running Away.

Through familiarity with the expression more than through familiarity with the experience, the steel trade, buyers and sellers, have a precise conception of what is meant by "a runaway steel market". It is the thing that was averted in 1906 by the large mills standing solidly against further price advances, accepting orders for delivery farther and farther ahead at their contract prices, and leaving it to the small mills to exact such premiums as they could obtain for the much prompter deliveries they could make, by avoiding the acceptance of contract business for forward delivery. In 1909 and 1912 what might possibly have developed into a runaway market was checked by the advances ceasing. In 1899 there was a runaway steel market, the only actual experience of this description since there has been any steel market at all. Then it was not a runaway as to all material, but only as to a quite limited tonnage, for prompt shipment. The mills had already loaded themselves with cheap tonnage. They were shipping \$16 rails and \$40 billets on the same day, and railroads were securing more for their old rails than they were paying for the new rails with which they replaced them. The runaway of to-day is of quite a different description because it involves a much larger tonnage. The mills are badly oversold as to current deliveries, but only to a very limited extent, as compared with their policies in the past, are they obligated with contracts for specification after January 1st. They will reach that date with perhaps three or four months' work, on an average, actually specified on their books, but after about April 1st, on an average, the mills will be shipping material sold now and to be sold later at very much higher prices than obtain, on an average, with the deliveries now being made.

Illustration of the Runaway.

On October 15th the Carnegie Steel Company advanced its price on bars, plates and shapes from 1.40c to 1.45c. On October 25th it advanced to 1.50c. On November 4th it advanced to 1.60c. These were ten-day intervals, with total advances of \$4 a ton within the compass of three weeks.

IRON AND STEEL,

The Carnegie advances as they were made became the quotable market, as other mills either had withdrawn previously, or advanced the moment the news of the Carnegie advance was out. No such rapid advances had occurred since 1899. The nearest approach was in 1904-5, when there was a "controlled market". As the depression of 1904 reached its close prices on bars, plates and shapes were dropped. On September 6, 1904, plates and shapes were dropped to 1.40c, while on September 19th Bessemer bars were dropped to 1.30c. On December 19th following shapes were advanced \$2 a ton, bars and plates being advanced \$2 the next day. On February 16, 1905, plates and shapes were advanced \$2 a ton while on the 28th bars were given a similar advance. Thus in somewhat less than three months these products were ad-

vanced by \$4 a ton. In a careful search of price movements since 1899 these are the sharpest advances we have been able to find, until now in three weeks, bars, plates and shapes advance by \$4 a ton. The rule in the past has been to give buyers an opportunity to cover an additional distance ahead with each price advance. That rule is no longer followed. It is a runaway market.

Steel Price Levels.

Our composite finished steel is particularly handy at this juncture. In these times no one has time to bother, in a general review of the steel market, with the individual price advances. What is news one day is history in a week. Top levels of our composite have been: in the 1905-6-7 price movement, 2.0925c; in the 1909 movement, 1.8625c; in the 1912 movement, 1.7825c. On

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	Bessemer, Basic, No. 2 fdy, Basic No. 2X fdy, Cleve- Valley Phila. Phila Buffalo. land. cago. ingham. ese.* coke†			— No. 2 fdy —			Ferro- Fur-				
1914—											
Jan. . .	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. . .	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. . .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April . .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May . . .	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June . .	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July . . .	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. . .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡	1.74
Sept. . .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70
Oct. . . .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65
Nov. . . .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60
Dec. . . .	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60
Year . . .	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80	1.72
1915—											
Jan. . . .	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55
Feb. . . .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55
Mar. . . .	13.60	12.50	12.75	13.50	14.35	12.74	13.25	13.39	9.42	78.00	1.53
April . . .	13.60	12.50	12.75	13.40	14.05	12.69	13.25	13.50	9.25	78.00	1.55
May	13.60	12.50	12.75	13.25	14.25	13.17	13.25	13.50	9.47	91.00	1.50
June . . .	13.75	12.57	12.70	13.42	14.25	13.08	13.25	13.50	9.50	100.00	1.50
July	13.98	12.87	12.72	13.83	14.28	12.83	13.20	13.50	9.61	100.00	1.67
Aug. . . .	15.12	13.98	13.71	14.83	14.91	13.80	14.08	13.88	10.77	100.00	1.54
Sept. . . .	15.93	14.80	14.50	16.70	15.91	15.43	15.04	14.30	11.22	107.50	1.66
Oct	16.00	15.00	14.58	17.25	16.25	15.75	15.25	15.08	11.71	105.00	2.10

* Contract price, f.o.b. Baltimore; † Prom pt, f.o.b. Connellsville ovens.

‡ Spot shipment; no contract market.

IRON AND STEEL.

October 1, 1915, the composite stood at 1.6775c, or at \$2 a ton below the lowest of the three top levels mentioned. On October 26th it reached the lowest of the three tops, that of the 1912 movement. On November 5th it had advanced nearly \$2 a ton more, and was precisely level with the second top, that of the 1909 movement, leaving it \$4.60 to go to equal the top of 1907. That distance will probably be traversed shortly, possibly before our next monthly review. Price changes in individual commodities are given in our list of "Price Changes" elsewhere in this issue.

The October Movement.

The expiration of third quarter contracts and the coming into effect of fourth quarter contracts did not retard the rate of specifying by contract holders. On the contrary, specifications increased, for each day the contracts looked better to the holders, and there were some contracts, perhaps a not inconsequential proportion, that were written at the same prices for fourth as for

third quarter.

The strictly new demand increased sharply. Railroads became more aggressive buyers than for years, both as to prompt material for car repair and other work, and for deliveries in the new year. Additional large rail orders were booked, bringing the total commitments to at least 750,000 tons. About 30,000 freight cars were ordered, and inquiries were put out that may lead to still heavier buying in November. Automobile builders entered the market for additional tonnage. The war demand continued insistent. Extremely fancy prices were paid for war billets, chiefly perhaps because there had been some miscalculations as to the rate at which material would be needed to fill shell orders. War billets sold at from \$50 to \$70 a ton, but such prices obtained only on relatively small lots and can hardly be expected to hold in the future.

The American Sheet & Tin Plate Com-

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

(Average from daily quotations, f.o.b. Pittsburgh.)											Composite
1914—	Shapes, Plates, Bars, Pipe, Wire,				Wire Cut		Sheets		Tin	Finished	
					Nails.	Nails.	Black.	Galv.	plate.	steel.	
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.32	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September .	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November ..	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.35	1.5182
1915—											
January ..	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	3.10	1.4554
February ...	1.10	1.10	1.10	80½	1.38	1.58	1.55	1.80	3.09	3.10	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.80	3.40	3.15	1.5098
April	1.20	1.20	1.20	80	1.41	1.57	1.55	1.80	3.40	3.20	1.5357
May	1.20	1.17	1.20	79	1.35	1.55	1.55	1.80	3.60	3.11	1.5381
June	1.20	1.15	1.20	79	1.35	1.55	1.55	1.76	4.80	3.10	1.5312
July	1.25	1.22	1.27	79	1.38	1.58	1.55	1.74	4.65	3.10	1.5602
August	1.30	1.26	1.30	79	1.43	1.61	1.55	1.85	4.40	3.10	1.6059
September .	1.33	1.33	1.35	79	1.54	1.69	1.58	1.91	3.68	3.10	1.6506
October	1.44	1.42	1.43	79	1.65	1.78	1.65	2.03	3.57	3.15	1.7261

IRON AND STEEL.

pany booked, in actual shipping orders, the largest tonnage for any month in its history, and the last week in October was the best week in the company's history. Many other companies doubtless made similar records in October, but the case of this company is of particular interest, when so many observers lean to the view that the present steel trade activity is due almost solely to the war, for this company does not make war material, to any extent at least that needs to be considered.

Remarkable Pig Iron Developments.

Our review a month ago said: "The pig iron market is almost at a standstill". That condition is past. The pig iron market backed and filled during the first six months of the year, with prices averaging as low July 1st as they had been January 1st, in other words below the real cost of

production for furnaces fairly well positioned as to costs. Then began an advance, which by September 24th had carried prices up \$2.12 on an average, as shown by our composite. No further advances occurred in the descriptions making up the composite until October 21st. The market really was at a standstill. From October 21st to the date of this writing, November 5th, there has been a further advance in the composite of 88 cents, most largely in the southern and Chicago markets, with slight advances in other districts.

There has been fairly heavy buying in all districts in the past fortnight, but by far the most conspicuous movement has been in steel making iron, a chain of steel works from Buffalo through Pittsburgh and Youngstown and down the Ohio valley purchasing in the space of not more than a

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909:

Quarter	1915	1914	1913
1st	\$12,457,809	\$17,994,382	\$34,426,802
2nd	27,950,055	20,457,596	41,219,813
3rd	38,710,644	22,276,002	38,450,400
4th		10,935,635	23,084,330
Year		71,663,615	127,181,345
	1912	1911	1910
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	30,063,512	29,522,725	37,365,187
4th	35,181,922	23,155,018	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,433	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,316	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,836,643
1915..	4,255,749	4,678,196	5,317,608	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, our own estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

	Ship- ments.	Book- ings.	Dif- ference.	Dif- ference.
	%	%	%	Tons.
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	+ 5	+ 54,742
September ..	62	24	-38	-425,664
October ...	55	28	-27	-326,570
November ..	45	32	-13	-136,505
December ..	38	82	+44	+512,051
January 1915	44	81	+37	+411,928
February ...	57	66	+ 9	+ 96,800
March	67	60	- 7	- 89,622
April	71	63	- 8	- 93,505
May	76	85	+ 9	+102,354
June	79	113	+34	+413,598
July	83	104	+21	+250,344
August	91	89	- 2	- 20,085
September ..	95	130	+35	+409,163

COMPOSITE STEEL.

Computation for November 1, 1915*

Pounds.	Group.	Price.	Extension.
20	Bars	1.50	3.150
10	Plates	1.50	2.250
10	Shape-	1.50	2.250
10	Pipe (¾-3)	2.10	3.150
10	Wire nails	1.85	2.700
10	Sheets (28 bl.)	2.10	2.100
½	Tin plates	3.10	1.550
10 pounds			11.975

One pound 1.7975

*N. B. On Nov. 5th, 1.8725.

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	1.5381
June	1.6817	1.5794	1.7719	1.4750	1.5312
July	1.6701	1.6188	1.7600	1.4805	1.5692
Aug.	1.6394	1.6784	1.7400	1.5421	1.6059
Sept.	1.6090	1.7086	1.7093	1.5632	1.6506
Oct.	1.5461	1.7588	1.6719	1.5236	1.7264
Nov.	1.4930	1.7750	1.6203	1.4769	.....
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

COMPOSITE PIG IRON.

Computation for November 1, 1915.

One ton Bessemer, valley	\$16.00
Two tons basic, valley (15.50)	31.00
One ton No. 2 foundry, valley	15.00
One ton No. 2 foundry, Philadelphia	16.25
One ton No. 2 foundry, Buffalo	15.75
One ton No. 2 foundry, Cleveland	15.25
One ton No. 2 foundry, Chicago	16.50
Two tons No. 2 Southern foundry,	
Cincinnati (15.40)	30.80
Total, ten tons	156.55
One ton	15.655

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	13.026
June	14.032	14.005	14.968	13.606	13.047
July	13.926	14.288	14.578	13.520	13.125
Aug.	13.874	14.669	14.565	13.516	14.082
Sept.	13.819	15.386	14.692	13.503	14.895
Oct.	13.692	16.706	14.181	13.267	15.213
Nov.	13.532	17.226	14.282	13.047	.....
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

SCRAP IRON & STEEL PRICES.

Melting Steel. Bundled Sheet. No. 1 R. R. No. 1 No. 1 Heavy
Pitts. Pitts. Pitts. Wrought. Cast. Steel. Melt'g.
Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1914—					
Jan.	11.25	7.00	12.20	12.00	10.50 9.25
Feb.	12.00	8.25	12.80	12.50	11.50 10.70
Mar.	12.25	9.00	12.85	12.40	11.50 10.50
Apr.	12.25	9.00	12.00	12.15	10.80 10.00
May	11.75	9.10	11.75	12.25	10.60 10.00
June	11.75	9.10	11.75	12.25	10.50 9.80
July	11.75	8.50	11.75	11.50	10.60 9.75
Aug.	11.50	8.50	11.50	11.25	10.75 9.75
Sept.	11.25	8.70	10.50	11.25	10.75 9.25
Oct.	10.75	8.50	10.25	11.25	10.00 9.00
Nov.	10.10	8.10	10.25	10.75	9.25 8.25
Dec.	10.50	8.50	10.50	11.00	9.65 8.40
Year	11.42	8.52	11.51	11.71	10.53 9.55

1915—					
Jan.	11.40	9.20	10.75	11.25	10.30 9.00
Feb.	11.70	9.25	10.75	11.25	10.70 9.20
Mar.	11.80	9.37	10.75	11.50	10.85 9.25
Apr.	11.65	9.37	10.75	11.85	11.10 9.13
May	11.65	9.37	10.75	11.85	11.25 9.50
June	11.75	9.37	10.75	11.85	11.25 9.75
July	12.62	9.60	11.00	12.00	11.85 10.90
Aug.	14.05	11.40	12.25	12.85	13.70 11.85
Sept.	14.25	11.90	13.15	13.10	14.70 12.15
Oct.	14.50	12.00	13.75	13.35	14.50 12.00

UNFINISHED STEEL**AND IRON BARS.**

(Averaged from daily quotations)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	Iron bars, deliv. Phila.	Ch'go.
1914—					
May	20.00	21.00	26.00	1.23	1.29 1.10
June	19.50	20.35	25.00	1.23	1.25 1.08
July	19.50	20.00	25.00	1.19	1.25 1.00
Aug.	20.17	21.08	25.25	1.18	1.25 1.07
Sept.	20.75	21.75	26.00	1.18	1.20 1.07
Oct.	20.00	20.70	26.00	1.14	1.20 1.01
Nov.	19.25	19.75	25.00	1.13	1.20 .96
Dec.	18.75	19.25	24.40	1.12	1.20 .91
Year	20.06	20.82	25.50	1.20	1.27 1.07
1915—					
Jan.	19.25	19.75	24.80	1.12	1.20 .97
Feb.	19.25	19.75	25.00	1.12	1.20 1.03
Mar.	19.30	19.80	25.00	1.13	1.20 1.10
Apr.	19.50	20.00	25.00	1.18	1.20 1.14
May	19.50	20.60	25.00	1.18	1.20 1.15
June	20.00†	20.50†	25.00	1.20	1.20 1.17
July	21.40†	21.90†	25.75	1.32	1.20 1.20
Aug.	23.50†	24.00†	27.00	1.43	1.25 1.22
Sept.	25.50†	26.00†	29.75	1.49	1.35 1.30
Oct.	26.00†	26.00†	31.50	1.57	1.45 1.38

* Premiums for Bessemer.

* Premiums for open-hearth.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our composite finished steel. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed:

1914—

Dec. 1	Bars	1.10	to 1.05
" 1	Shapes	1.10	to 1.05
" 3	Tin plate	3.25	to 3.20
" 4	Wire nails	1.55	to 1.50
" 28	Tin plate	3.20	to 3.10
" 30	Sheets	1.85	to 1.80

1915—

Jan. 1	Bars	1.05	to 1.10
" 1	Plates	1.05	to 1.10
" 1	Shapes	1.05	to 1.10
" 11	Wire nails	1.50	to 1.55
Feb. 11	Wire nails	1.55	to 1.60
" 11	Pipe	81% to 80%	
" 15	Galv. sheets	3.00	to 3.25
" 25	Galv. sheets	3.25	to 3.40
Mar. 1	Bars	1.10	to 1.15
" 1	Plates	1.10	to 1.15
" 1	Shapes	1.10	to 1.15
" 1	Wire galvanizing differential	40c	to 50c
Mar. 15	Shafting	68% to 70%	
	(New list, f.o.b. Pittsburgh instead delivered)		
" 17	Wire galvanizing differential	50c	to 60c
April 1	Boiler tubes	1.75	to 1.70
" 1	Bars	1.15	to 1.20
" 1	Plates	1.15	to 1.20
" 1	Shapes	1.15	to 1.20
" 14	Wire nails	1.60	to 1.55
May 1	Steel pipe	80% to 79%	
" 1	Boiler tubes	75% to 74%	
" 1	Tin plate	3.20	to 3.10
" 12	Plates	1.20	to 1.15
" 17	Galvanized sheets	3.40	to 3.60
" 24	Galvanized sheets	3.60	to 3.75
June 1	Galvanized pipe	69% to 68%	
" 1	Galvanized sheets	3.75	to 4.25
" 8	Sheets	1.80	to 1.75
" 9	Galv. sheets	4.25	to 5.00
" 15	Boiler tubes	74% to 73%	
July 1	Bars	1.20	to 1.25
" 1	Plates	1.15	to 1.20
" 1	Shapes	1.20	to 1.25
" 2	Sheets	1.75	to 1.70
" 6	Wire nails	1.55	to 1.60
" 7	Sheets	1.70	to 1.75

1915—

" 14	Galvanized sheets	4.00	to 4.50
" 16	Boiler tubes	75% to 72%	
" 20	Plates	1.20	to 1.25
" 20	Wire nails	1.60	to 1.55
" 21	Bars	1.25	to 1.30
" 28	Galvanized sheets	4.50	to 4.25
" 29	Wire nails	1.55	to 1.60
Aug. 3	Shapes	1.25	to 1.30
" 4	Sheets	1.75	to 1.80
" 6	Black sheets	1.80	to 1.85
" 10	Blue ann. sheets	1.65	to 1.40
" 23	Wire galvanizing	60c	to 70c
" 24	Wire	1.40	to 1.50
" 24	Wire nails	1.60	to 1.65
" 24	Wire galvanizing	80c	to 60c
" 25	Black sheets	1.85	to 1.90
" 27	Plates	1.25	to 1.20
" 31	Bars	1.30	to 1.35
" 31	Blue ann. sheets	1.40	to 1.50
Sept. 15	Plates	1.30	to 1.35
" 15	Shapes	1.30	to 1.35
" 20	Wire nails	1.65	to 1.75
" 28	Sheets	1.90	to 1.95
" 29	Shapes	1.65	to 1.40
Oct. 1	Boiler tubes	74% to 73%	
" 6	Bars	1.35	to 1.40
" 6	Sheets	1.95	to 2.00
" 7	Blue ann. sheets	1.55	to 1.60
" 13	Bars	1.40	to 1.45
" 15	Plates	1.40	to 1.45
" 15	Shapes	1.40	to 1.45
" 15	Galv. sheets	4.50	to 5.00
" 19	Black sheets	1.90	to 1.95
" 21	Wire nails	1.75	to 1.85
" 25	Blue ann. sheets	1.60	to 1.65
" 25	Bars	1.45	to 1.50
" 26	Plates	1.45	to 1.50
" 26	Shapes	1.45	to 1.50
" 28	Blue ann. sheets	1.65	to 1.70
" 29	Boiler tubes	73% to 72%	
Nov. 1	Steel pipe	73% to 72%	
" 1	Galv. sheets	4.50	to 5.00
" 4	Black sheets	2.00	to 2.10
" 4	Galv. sheets	3.60	to 4.00
" 5	Bars	1.50	to 1.60
" 5	Plates	1.50	to 1.60
" 5	Shapes	1.50	to 1.60
" 5	Tin plate	4.00	to 3.80

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. Oct. 30.
	High.	Low.	High.	Low.	High.	Low.	
Bessemer, valley	17.25	14.25	14.25	13.55	16.00	13.60	16.00
Basic, valley	16.50	12.50	13.25	12.50	15.50	12.50	15.50
No. 2 foundry, valley	17.50	13.00	13.25	12.75	15.00	12.50	15.00
No. 2X fdy, Philadelphia..	18.50	14.50	15.00	14.20	16.25	14.00	16.25
No. 2 foundry, Cleveland ..	17.75	13.50	14.25	13.25	15.25	13.00	15.25
No. 2X foundry, Buffalo...	18.00	13.00	13.75	12.25	15.75	11.75	15.75
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	16.50	13.00	16.50
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	12.50	9.25	12.50
Scrap Iron and Steel.							
Melting steel, Pittsburgh ..	15.00	10.75	12.00	9.75	15.00	11.00	15.00
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	12.25	8.75	12.00
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	14.00	10.75	14.00
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	13.50	11.00	13.50
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	15.00	9.50	14.50
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.50	1.20	1.50
Iron bars, Philadelphia	1.67	1.22 1/2	1.27	1.12	1.66	1.12 1/2	1.66
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.50	1.10	1.50
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.50	1.10	1.50
Structural shapes, Pitts. ..	1.50	1.20	1.25	1.05	1.50	1.10	1.50
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12 1/2	1.50	1.12 1/2	1.50
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	2.15	1.70	2.15
Galv. sheets, Pittsburgh ..	3.50	2.80	3.00	2.75	5.00	2.65	3.60
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.30	3.10	3.30
Cut nails, Pittsburgh	1.70	1.60	1.60	1.55	1.65	1.55	1.65
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	1.85	1.50	1.85
Steel pipe, Pittsburgh	79 1/2	80 1/2	79 1/2	81 1/2	79 1/2	81 1/2	79 1/2
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.75	2.00	1.60	2.75	1.50	2.60
Prompt foundry	4.50	2.40	2.50	2.00	3.00	2.00	3.00
Metals—New York.							
Strait's tin	51.00	36.75	65.00	28.50	51.00	32.00	51 1/2
Lake copper	17.75	14.50	15.50	11.30	20.62 1/2	13.00	17.87 1/2
Electrolytic copper	17.65	14.12 1/2	14.87 1/2	11.10	20.50	12.80	17.87 1/2
Casting copper	17.15	13.87 1/2	14.65	11.00	19.62 1/2	12.70	17.50 1/2
Sheet copper	22.00	19.75	20.25	16.50	25.00	18.75	23.00
Lead (Trust price)	4.75	4.00	4.15	3.50	7.00	3.70	4.90
Spelter	7.35	5.10	6.20	4.75	27.50	5.70	...
Chinese & Jap. antimony.	9.00	6.00	18.00	5.30	38.00	13.00	35.50
Aluminum, 98-99%	27.12 1/2	18.50	21.50	17.50	57.00	18.75	56.00
Silver	63 3/4	56 1/8	59 1/2	47 1/8	51 1/2	46 1/4	49 1/8
St. Louis.							
Lead	4.52 1/2	3.85	4.10	3.55	7.50	4.10	4.82 1/2
Spelter	7.17 1/2	4.95	6.00	4.60	27.00	5.55	14.50
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	33.00	9.00	16.00
London.							
Standard tin, prompts	232	166 1/2	188	132	190	148 1/4	158 3/4
Standard copper, prompts ..	77 1/2	61 3/4	66 1/4	49	86 1/4	57 1/8	73
Lead	21 1/2	15 3/4	24	17 1/8	28 1/2	18 1/4	23 3/4
Spelter	26 1/4	20 1/4	33	24 1/2	110	28 1/8	71 1/2
Silver	203 3/4	251 5/8	275 1/2	223 1/2	246 1/2	22 1/2	246 1/2

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1913.		Range for 1914.		Range for 1915.		Closing.
	High.	Low.	High.	Low.	High.	Low.	Oct. 30.
Atchafalaya, Top. & Santa Fe	106 1/2	90 1/2	100	80 1/2	100	80	108 1/2
Arch. Top. & Santa Fe, pfd.	102 1/2	90	100	80	100	80	101 1/2
Baltimore & Ohio	100	90	98	87	98	80	94 1/2
Canadian Pacific	260	204	240	190	240	190	183 1/2
Chesapeake & Ohio	80	57	68	49	68	49	62 1/2
Chicago, Mil. & St. Paul	116 1/2	96 1/2	107 1/2	84	108	80	94 1/2
Eric R. R.	42	26	34	20 1/2	34	20	42 1/2
Great Northern, pfd.	142	116	140	107	140	100	125 1/2
Lough Valley	168 1/2	141 1/2	160	148	160	140	80 1/2
Louisville & Nashville	142	129 1/2	140	107	140	104	129
Missouri, Kansas & Texas	40	18 1/2	30	8	30	8	6 1/2
Missouri Pacific	40	20	30	7	30	14 1/2	5 1/2
New York Central	100 1/2	70	90	55	90	50	103
N. Y., N. H. & Hartford	129 3/4	65 1/2	78	49 1/2	89	43	82 1/2
Northern Pacific	127 1/2	100 1/2	118	90	118	80	115 1/2
Pennsylvania R. R.	12 1/2	100	12	70 1/2	12	11 1/2	60 1/2
Reading	124 1/2	114	120	90	120	80	83
Rock Island	24	11	20	7	20	7	8 1/2
Southern Pacific	110	80	90	81	100	81	101 1/2
Union Pacific	162 1/2	137 1/2	160	107	160	100	138 1/2
Industrials.							
Am. Beet Sugar	50 1/2	19 1/2	40	10	40	10	66 1/2
American Can	46 1/2	21	37 1/2	10	38	20	62
American Can, pfd.	120 1/2	80	96	80	108	80	107 1/2
Am. Cit. & Foundry	56	34 1/2	50	42	58	40	87 1/2
Am. Cotton Oil	57	30	40 1/2	20	40	20	62
Am. Locomotive	44	27	30	20	34	20	101 1/2
Am. Smelting & R. Co.	74 1/2	58	70	50	70	50	94 1/2
Brooklyn Rapid Transit	92	80 1/2	80	70	80	70	87 1/2
Cerro Copper	47	30	40	20	40	20	52 1/2
Colo. Fuel & Iron Co.	41	24	34 1/2	20	30	20	57 1/2
Consolidated Gas	147	125	140	100	140	100	142
General Electric	187	123 1/2	180	100	180	100	182
Hambleton Mfg. Co.	19	10	10	10	10	10	22 1/2
International Harvester	111	86	100	80	100	80	84
Lackawanna Steel	40	20	40	20	40	20	84
National Lead	50 1/2	40	40	30	40	30	67 1/2
R. y. Consolidated Copper	22	10	20	10	20	10	20 1/2
Republic Iron & Steel	28	14	20	18	20	10	54 1/2
Roanoke Iron & Steel, pfd.	92	72	80	70	110	70	104
St. Louis-Sheffield	45 1/2	20	35	14	30	10	61
Texas Co.	102	80	100	70	100	70	100 1/2
U. S. Rubber	60 1/2	54	60	40	60	40	56 1/2
U. S. Steel Corporation	60 1/2	40	60	38	60	38	87 1/2
U. S. Steel Corporation, pfd.	110 3/4	102 1/2	112 3/4	103 1/4	117	102	116 3/4
Utah Copper	60	30	60	30	60	30	72 1/2
Va. Carolina Chem.	40	20	30	10	30	10	50 1/2
Western Union Telegraph	75 1/2	54 1/2	66 1/2	53 1/2	90	57	81

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,982	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	20,985,505
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	25,302,649
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	26,536,612
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	31,757,103
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	35,891,575
August	17,628,537	20,013,557	25,450,107	23,917,440	10,428,817	37,726,822
September	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December	18,300,710	22,186,996	22,750,864	22,115,701	14,939,613	
Totals	\$201,271,903	\$249,656,411	\$289,128,420	\$293,934,160	\$199,861,684	\$212,697,467

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	174,315
April	93,285	100,91	117,921	228,149	267,313	259,689	161,952	223,240
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	263,649
June	69,770	114,724	120,601	174,247	273,188	243,108	144,539	355,402
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	378,897
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	405,853
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	
Totals	961,242	1,244,567	1,540,895	2,187,724	2,948,466	2,730,681	1,549,503	2,085,511

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan.	154,118	175,463	101,804	75,286
Feb.	129,690	188,734	112,574	78,513
Mar.	157,469	164,865	68,549	88,402
April	178,502	174,162	111,812	91,561
May	194,482	191,860	125,659	98,974
June	180,122	241,069	188,647	118,575
July	185,077	272,017	141,838	119,168
Aug.	178,828	213,139	134,913	126,806
Sept.	180,571	295,424	109,176	
Oct.	202,125	274,418	114,341	
Nov.	163,017	179,727	90,222	
Dec.	199,982	223,892	51,053	
Totals	2,104,576	2,594,770	1,351,368	797,845

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan.	33,071	20,008	21,740	17,776	10,568
Feb.	20,812	11,622	25,505	14,757	7,506
Mar.	23,533	15,466	21,167	27,829	8,025
April	22,392	12,481	25,742	30,585	16,565
May	23,347	15,949	28,728	28,173	28,916
June	29,399	21,407	36,597	23,076	32,200
July	15,782	17,882	36,694	25,282	20,858
Aug.	10,944	20,571	18,740	28,768	27,556
Sept.	14,039	18,740	19,941	38,420	
Oct.	21,035	25,559	20,840	22,754	
Nov.	13,880	24,154	25,809	24,165	
Dec.	19,665	21,231	26,454	9,493	
Total	256,903	225,072	317,260	290,394	152,194

CAR BUYING.

Freight cars ordered:

First half 1913	114,000	
Second half 1913	33,000	
Year 1913	147,000	
March	8,000	
April	10,000	
May	10,000	
June	15,000	
July	7,000	
August	3,100	
September	95	
October	1,725	
November	550	
December	1,150	
Year, 1914	80,000	
January 1915	3,300	
February	4,255	
March	1,287	
April	3,000	
May	20,210	
June	29,864	
Six months	61,916	
July	5,675	
August	4,260	
September	5,060	
October	26,939	

PIG IRON PRODUCTION.

Rates per annum, including charcoal pig.

January, 1914	22,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000
March	24,500,000
April	26,060,000
May	26,800,000
June	24,250,000
July	26,300,000
August	21,800,000
September	35,000,000
October	21,100,000
On November 1st	21,500,000
Actual production	
1910	27,303,567
1913	30,966,152
1914	23,332,244

OUR FOREIGN TRADE.

Value of merchandise imports and exports, and favorable trade balance, calendar years

	Imports.	Exports.	Balance.
1909	\$829,149,714	\$1,477,946,115	\$648,796,399
1911	880,419,910	1,465,375,860	584,955,950
1912	989,316,870	1,360,685,933	391,369,063
1913	995,191,327	1,484,753,083	489,258,756
1914	1,035,909,150	1,451,318,740	415,409,550
1915	1,179,144,550	1,626,990,795	447,846,245
1906	1,320,501,572	1,798,243,434	477,741,862
1907	1,423,169,820	1,923,426,205	500,256,385
1908	1,116,374,087	1,752,835,147	636,461,360
1909	1,475,520,724	1,728,198,645	252,677,921
1910	1,562,904,151	1,866,258,904	303,354,753
1911	1,532,359,160	2,092,526,746	560,167,586
1912	1,818,133,355	2,399,217,900	581,084,638
1913	1,792,596,480	*2,484,018,292	*691,421,812
1914	*1,789,176,001	2,113,624,059	324,448,049
1913--			
April	146,194,461	199,813,438	53,618,977
May	133,729,713	194,607,422	60,887,709
June	131,245,877	163,404,916	32,159,039
July	139,061,770	160,990,778	21,929,008
Aug.	137,651,553	187,909,029	50,257,467
Sept.	171,084,843	218,240,001	47,155,158
Oct.	132,949,302	271,861,464	138,912,162
Nov.	148,236,536	245,539,042	97,302,506
Dec.	*184,025,571	233,195,628	49,170,057
1914--			
Jan.	154,742,923	204,066,603	49,323,680
Feb.	148,044,776	173,920,145	25,875,369
Mar.	182,555,304	187,499,254	4,943,930
April	173,762,114	162,552,570	†11,209,544
May	164,281,515	161,732,619	†2,548,896
June	157,529,450	157,072,044	†457,406
July	150,677,290	154,138,947	†5,538,344
Aug.	129,767,890	119,367,494	†19,400,396
Sept.	139,710,611	156,052,333	16,341,722
Oct.	138,080,520	164,711,170	26,630,650
Nov.	126,167,062	205,878,333	79,711,271
Dec.	114,656,545	245,632,558	130,976,013
1915--			
Jan.	122,267,267	267,801,370	145,534,103
Feb.	127,123,391	*298,797,757	*171,674,366
Mar.	158,032,414	206,501,830	148,469,416
Apr.	169,775,103	204,746,117	134,170,011
May	141,284,851	204,500,000	131,484,242
June	157,600,130	208,547,446	150,822,970
July	141,000,020	204,628,000	163,819,070
Aug.	141,800,000	211,000,000	169,100,000
Sept.	157,123,800	204,700,000	147,576,200

* High season.

† Balance in favor of U.S.

STEEL MAKING PIG IRON AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and over

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. ...	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. ...	14.225	13.60	13.059	12.50
Mar. ...	14.1667	13.60	13.041	12.50
April ...	14.00	13.60	13.00	12.50
May ...	14.00	13.659	13.00	12.65
June ...	14.00	13.75	13.00	12.724
July ...	14.00	13.991	13.00	12.959
Aug. ...	14.00	15.064	13.00	14.364
Sept. ...	14.00	15.906	13.00	15.00
Oct. ...	13.9375	16.00	12.85	15.0145
Nov. ...	13.6375	.....	12.477	.....
Dec. ...	13.75	.....	12.50	.....
Year ...	13.9793	.....	12.854	.....

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February.	1.4831	1.1590	1.024
March-April	1.5430	1.176	1.087
May-June	1.5222	1.1257	*1.10
July-August	1.5029	1.0928	*1.15
September-October	1.3931	1.0847	
November-Dec'ber	1.2030	1.037	
Year's average	1.4421	1.1125	

* Settlement basis.

TIN PLATE MOVEMENT.

United States imports and exports of tin plate in gross tons have been as follows, the imports of course including those for drawback purposes:

	Imports.	Exports.
1906	56,983	12,082
1907	57,773	10,293
1908	58,490	11,878
1909	62,593	9,327
1910	66,640	12,459
1911	14,098	61,466
1912	2,053	81,694
1913	20,680	57,812
1914	15,411	59,549
January, 1915	1,608	7,014
February	265	5,834
March	53	10,500
April	44	9,084
May	24	7,218
June	75	8,024
July	71	13,845
August	50	21,959

Eight months .. 2,490 82,838

Prior to July the maximum exports in a month were in April, 1912, 11,000 gross tons.

British tin plate exports have been as follows, in gross tons:

1912	481,123
1913	494,921
1914	435,497
January, 1915	29,216
February	25,101
March	36,179
April	40,135
May	33,727
June	33,986
July	39,528
August	22,572
September	20,002
Nine months	280,437

LAKE SUPERIOR IRON ORE.

Shipments of iron ore down the lakes have been as follows, in gross tons:

	1911.	1912.	1913.	1914.	1915.
April	3,164,515	2,044,042	866,386	269,686	503,822
May	3,684,819	5,919,074	1,284,212	3,852,063	5,012,359
June	4,819,996	7,567,555	1,974,444	5,502,367	6,005,091
July	5,221,373	1,600,233	8,204,416	5,784,514	7,204,021
August	5,518,441	7,760,248	1,677,691	5,869,417	8,081,117
September	5,244,069	1,287,250	7,258,413	5,438,049	7,867,146
October	4,569,395	7,010,219	6,526,103	4,242,392	7,146,873
November	2,524,253	4,072,674	3,270,958	1,070,092	.....
December .....	.....	11,759	18,545	.....	.....
September-1st	12,150,411	47,435,777	49,070,478	32,021,897	41,816,439

COPPER.

COPPER SITUATION.

During October the copper market has been very dull and quiet, and from a producer's standpoint, a disappointing one; in all the predictions made from that quarter are to be taken at par.

At the opening of the month the daily press was supplied with reports of an enormous imminent demand for war orders which were to cause heavy buying and advancing prices; yet the fact remains that although every other metal scored substantial advances during the month, such as

22½c per lb. on Tin,

40c per 100 lbs. on Lead,

15c per lb. on Spelter,

7½c per lb. on Antimony,

6½c per lb. on Aluminum,

and a sensational market on Iron and Steel products with heavy advances, Copper alone has failed to show any advance. Opening in the outside market at 18c cash New York for Electrolytic, the market declined to 17½c around the third week, and closed at 17½c, or lower than the month opened. The producers' price was 18½c delivered terms early in the month, but they retreated to 18c, closing at 18½c.

Consumers have shown little interest, in spite of all efforts to stampede them into buying, and the reason has been they received very few new war orders during the month, and evidently have seen nothing in the situation and with copper at the comparatively high price of 18c to cause them to place orders ahead of actual requirements or in excess of obligations.

Our mills have never been more busy than they have been during October, but it has been on war orders booked in June, July and August, and for which they, at the time, contracted for their copper supplies for said orders. Home requirement demands have shown an improvement but are still below normal.

Consumers realize the strength of the producers, and their ability to carry increasing stocks, and their control of the market, and therefore are not likely to book orders for manufactured goods without covering the metal to make them, but they seem determined not to be induced to help producers carry stocks at present prices, or

to buy futures ahead of orders in anticipation of higher prices.

Outside sellers have been very shy about taking any liberties with the market, and have cut a very small figure in the month's limited transactions.

Our producers control the foreign market for Electrolytic and have kept prices pegged at £88 in London throughout the entire month.

Standard copper, the speculative counter of the foreign market has ruled at about £74, with fluctuations of only £1 up or down from this figure with an abnormal difference of £15 per ton under Electrolytic.

COPPER PRICES IN OCTOBER.

— New York — London.

Day	Lake.	Electro.	Casting.	Standard.
	Cents	Cents	Cents	£ s d
1	18.00	18.00	17.37½	74 0 0
2				
3				
4	18.00	18.00	17.50	72 17 6
5	18.00	18.00	17.37½	72 2 6
6	18.00	18.00	17.37½	71 0 0
7	18.00	18.00	17.37½	72 0 0
8	18.00	18.00	17.37½	72 5 0
9				
10				
11	18.00	18.00	17.37½	72 17 6
12				74 0 0
13	18.00	17.93½	17.37½	73 12 6
14	17.87½	17.87½	17.37½	72 12 6
15	17.87½	17.87½	17.25	72 10 0
16				
17				
18	17.87½	17.75	17.25	72 5 0
19	17.87½	17.75	17.25	72 17 6
20	17.87½	17.75	17.25	73 0 0
21	17.87½	17.62½	17.25	72 17 6
22	17.87½	17.62½	17.25	74 2 6
23				
24				
25	17.87½	17.75	17.25	72 5 6
26	17.87½	17.75	17.25	72 2 6
27	17.87½	17.75	17.25	72 0 0
28	17.87½	17.87½	17.37½	72 2 6
29	17.87½	17.87½	17.37½	71 0 0
30				
31				
High	18.12½	18.12½	17.62½	74 0 0
Low	17.75	17.50	17.12½	71 0 0
Av'ge.	17.907	17.875	17.321	72 12 3

COPPER.

LAKE COPPER PRICES.

Average monthly prices of **Lake Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37½	16.89	14.76½	13.89
Feb.	12.73	14.38½	15.37½	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.27	15.73	14.44	18.81
June	12.63	17.43	15.08	14.15	19.92
July	12.72	17.37	14.77	13.73	19.42
Aug.	12.70	17.61	15.79	12.68	17.47
Sept.	12.57	17.69	16.72	12.44	17.76
Oct.	12.47½	17.69	16.81	11.66	17.92½
Nov.	12.84	17.66	15.90	11.93	.....
Dec.	13.79	17.62½	14.82	13.16	.....
Av..	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of **Electrolytic Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75½	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92½	14.33½	14.96
Apr.	12.15½	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	18.60
June	12.55	17.29	14.85	13.81	19.71
July	12.62½	17.35	14.57	13.49	19.08
Aug.	12.57½	17.60	15.68	12.41½	17.22
Sept.	12.39	17.67	16.55	12.09	17.70
Oct.	12.36	17.60	16.54	11.40	17.86
Nov.	12.77	17.49	15.47	11.74	.....
Dec.	13.71	17.50½	14.47	12.93	.....
Av..	12.55	16.48	15.52	13.31½	.....

CASTING COPPER PRICES.

Average monthly prices of **Casting Copper** in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27½	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72½	15.53	14.18	16.48
May	12.08	16.01	15.45½	14.00	17.41
June	12.40	17.08	14.72	13.65	18.74
July	12.49½	17.09	14.40½	13.34½	17.76
Aug.	12.42	17.35	15.50	12.27	16.46
Sept.	12.23	17.51	16.37½	12.00	16.75
Oct.	12.21	17.44	16.33	11.29	17.32
Nov.	12.61	17.34	15.19	11.63	.....
Dec.	13.56½	17.34	14.22	12.83½	.....
Av..	12.42	16.29	15.33	13.18	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since September 1, 1914 are given in the following table together with the price of Lake copper on the same dates:

1914—	Sheet Copper, Lake Copper.	
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19 ...	17.00	12.25
November 23 ...	17.50	12.62½
December 1,	18.00	12.90
December 15	18.50	13.50
1915—		
January 16	18.75	13.75
January 21	19.00	14.12½
January 25	19.50	14.37½
January 29	19.75	14.62½
March 22	20.25	15.12½
March 25	20.50	15.43¾
March 27	20.75	15.75
April 8	21.00	16.50
April 13	21.25	16.62½
April 14	21.50	16.75
April 17	22.00	17.00
April 19	22.50	17.62½
April 22	23.00	18.00
April 28	24.00	18.93¾
June 8	24.50	19.62½
June 9	25.00	19.87½
July 27	24.50	18.87½
July 31	24.00	18.75
August 18	23.00	16.75
November 3	23.25	18.06¼

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914.	1915.
January ..	31,229	25,026	36,018	26,193
February ..	31,894	26,792	34,634	15,583
March ...	27,074	42,428	46,504	30,148
April	22,591	33,274	35,079	18,738
May	32,984	38,601	32,077	28,889
June	26,669	28,015	35,182	16,976
July	26,761	29,596	34,145	17,708
August ..	29,526	35,072	16,509	17,531
September	25,572	34,356	19,402	14,877
October ..	25,020	29,239	23,514	*23,657
November	19,171	29,758	24,999	.....
December	29,474	30,653	22,166	.....
Total ..	327,965	382,810	360,229	.....

* Includes only exports from Atlantic ports.

COPPER.

This illustrates the difference in opinion that has existed between the producers' view of what their metal is worth, and the view of speculators and traders regarding the situation and its prospects.

There seem to be two widely different views about copper abroad.

The first, which is the most prevalent abroad, is, that all the Australian and Japanese copper has been sold out to the end of the year, all the smaller producers in America well sold, the market is therefore entirely in the hands of the big American producers, who are both rich enough, and in a mood to hold prices up, even if they have to heavily increase their stocks. That the stocks abroad promise to continue to decrease, and lastly that the price of Standard is so far below the price of Electrolytic that even if Electrolytic should fall £5, Standard would probably only decrease £1 or £2. Also that the low price ruling for Standard enables foreign stocks to be shipped to America, refined and brought back at a handsome profit.

The other view is that the peace consumption abroad is getting less every month, and that the war consumption has reached its zenith. That the American producers tell Europe they have sold heavily to the home trade in America, while they tell the home trade in America that they have sold heavily to Europe, while as a matter of fact they are really piling up stocks, and that present prices are high ones for copper.

Probably both these views are extreme, and the true and real position may be found

somewhere between these divergent views.

No statistics are available regarding American stocks or production. The latter, in spite of the strike at the Arizona mines, is at a record high rate, and it is difficult to see how there can be anything but a steady increase in stocks going on in the hands of the large producers.

The reason, we think, why the "drum-beating" going on in Wall Street and elsewhere fails to advance copper, is that the metal is already at a high price, and that the heavy war orders and present home requirements, while taxing our present consuming plants, and causing them to run double shifts, is not sufficient to make up for the falling off in our exports to Teutonic nations, which figures at the rate of between 200 to 250 million pounds per annum, and the increase in American production. Until new plants are completed we would seem to have reached the physical limit in consumption in America.

COPPER EXPORTS FOR EIGHT MONTHS.

Big shipments to France and Russia were the feature of copper exports during August as to those countries there was consigned 10,975,061 pounds and 8,411,757 pounds respectively, against 2,675,807 to France and none to Russia a year ago. On the other hand England took but 946,360 pounds in August, whereas nearly 25,000,000 pounds were consigned to that country last year.

The export movement of copper for eight months of the past two years, 1913 and 1914, is follows, in pounds:

	1913.	1914.
Austria-Hungary	1,050,748	2,680,748
France	10,975,061	2,675,807
Germany	17,008,048	17,008,048
Italy	67,961,200	78,882,848
Netherlands	2,141,174	11,717,640
Russia (Europe)	26,921,562	8,411,757
England	14,193,112	946,360
Canada	14,183,521	20,687,748
Misc. total	47,247,296	27,180,608

While copper exports have been falling off as a result of the loss of Germany as a taker of the metal there has been prompt recompense at least through increased breaking shipments of brass in many forms. The

WATERBURY COPPER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87½	14.50	17.00	14.75	14.12
Feb.	12.75	14.50	15.50	15.12½	15.25
Mar.	12.50	15.00	15.12	15.00	15.75
Apr.	12.50	16.00	15.75	14.87½	18.50
May	12.37½	16.37½	15.87½	14.75	22.50
June	12.62½	17.50	15.37½	14.37½	22.50
July	12.75	17.75	14.75	14.12½	22.25
Aug.	12.75	17.75	15.62½	13.00	19.50
Sept.	12.62½	17.87½	16.87½	12.87½	18.50
Oct.	12.50	17.75	16.87½	12.25	18.25
Nov.	12.87½	17.75	16.25	12.25	..
Dec.	13.87½	17.75	15.00	13.50	..
Av.	12.75	16.71	15.83	13.91	..

TIN.

value of eight months' brass shipments was \$26,602,575, against but \$4,559,204 last year. The brass movement compares (in pounds)

Eight months.	For	
	Remanufacture.	Bar, etc.
1915	9,446,987	44,996,328
1914	15,817,691	3,555,647
1913	13,700,084	4,688,489

In addition to the big tonnage of brass (comprised chiefly of two pounds copper to one pound spelter) a large quantity has gone abroad in ammunition shipments.

Importations of copper have slumped heavily from 259,001,630 pounds two years ago up to the end of August to 196,281,944 pounds this year. The absence of Spain and Australia as shippers to this country and the smaller Mexican shipments were the principal contributing factors. Canada, Chile, Peru and Japan, however, have increased their shipments to the United States.

SPECIAL N. Y. METAL EXCHANGE TIN NOTICE.

At a meeting of the Board of Managers held October 8th, the following was adopted:

Whereas, it is reported that the question of levying an export duty on tin is now under consideration by the British authorities the Board of Managers of the New York Metal Exchange declare:

That the provisions of The New York Tin Contract as adopted by the New York Metal Exchange, and the Rules of the Exchange, make it sufficiently clear and explicit that, in the event of such a duty being levied, it must be paid by the buyer unless otherwise specifically agreed.

COMPOSITE METAL PRICES.

Computation of November 1, 1915:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	14.50	36.250
4	Lead (St. Louis)	4.82½	19.300
3	Copper (Electro)	18.06¼	54.187
½	Tin (New York)	36.00	18.000
10 pounds			127.737
One pound			12.7737

THE TIN SITUATION.

The Tin market October 1st opened at 32¾c with disappointing statistics showing a slight decrease in visible supply whereas a decrease of 1,500 to 2,000 tons had been expected. American deliveries which had been estimated at 3,500 to 6,000 tons turned out to be only 4,500 tons, hence the stocks in America were the largest on record, 4,546 tons, of which 2,220 tons were in store and 2,326 tons on dock or landing. There is no doubt that this overstocked condition in the American market would have resulted in a decline in prices, if it had not been for the fact, that almost simultaneously the market was disturbed by rumors that an export duty might be placed on tin by the British Government for revenue purposes. This resulted in a good inquiry for spot and ex steamers afloat, with sellers very shy about committing themselves to any extent, and this attitude of buyers and sellers has continued throughout the month.

Although no one seems to know how these rumors originated and although there has since been no confirmation, still the fear of this export duty has monopolized the interest of the trade and has been a constant feature ever since and promises to continue.

Authorities in the trade in London and the East Indies claim that the reports of an impending duty are baseless. Some other authorities claim the matter is under consideration by the British Government, while it is the opinion of others that it is only a matter of time, if the war continues, when the necessity for increased revenue will cause such export duties to be placed on articles that the rest of the world depend on England and her possessions, the Malay Settlements, South Africa, etc.

An export duty would not stop or interfere with English exports of tin, and the cost of this export duty would come out of the American buyer.

Of course such an export duty would not affect the stock of Banca tin which is held by the Dutch Government in the East Indies, and which does not appear in the statistics, and which is estimated at between 5,000 and 6,000 tons. But should the duty be imposed the Dutch Government would take advantage of it to get an increased

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.					
	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,785
May	15,938	14,345	13,710	17,862	14,646
June	16,605	12,920	11,101	16,027	15,927
July	16,707	13,346	12,063	14,167	16,084
Aug.	16,619	11,285	11,261	14,452	15,127
Sept.	16,672	13,245	12,943	14,613	15,191
Oct.	14,161	10,733	11,857	10,894	13,154
Nov.	16,630	12,348	14,470	11,483	.....
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	5,270
May	4,965	4,310	5,760	6,160	6,900	6,759
June	4,120	5,050	4,290	4,820	5,870	6,665
July	5,040	4,660	4,580	4,770	4,975	5,606
Aug.	5,700	4,680	5,210	6,030	3,315	4,712
Sept.	4,220	5,150	5,430	5,160	4,973	5,296
Oct.	4,480	4,350	4,150	5,020	4,610	4,441
Nov.	4,840	5,070	5,600	5,560	5,155	.....
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	3,200
May	3,600	3,400	4,250	3,350	3,800	5,600
June	5,000	2,900	2,850	3,800	3,650	3,900
July	3,800	4,300	5,150	3,900	3,900	5,300
Aug.	3,700	3,800	4,300	3,600	2,900	4,500
Sept.	3,300	4,200	3,600	3,100	3,600	4,300
Oct.	3,350	3,500	3,850	3,700	3,700	4,900
Nov.	3,800	3,100	4,300	2,800	2,600	.....
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,500	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Oct. 1915.	Sept. 1915.	Oct. 1914.
Straits shipments			
To Gr. Britain..	1,160	749	1,400
Continent ..	1,331	1,202	nil
U. S.	2,050	1,115	1,210
Total on Straits	4,541	3,066	4,610
Australian shipments			
To Gr. Britain ..	266	255	nil
U. S.	nil	nil	nil
Total Australian	266	255	nil
Consumption			
London deliveries	1,691	1,396	2,088
Holland deliveries	455	664	1,133
U. S.	1,900	1,300	3,700
Total	4,046	3,360	7,921
Stocks at close of month			
In London			
Straits, Australian	1,794	2,528	2,349
Other kinds ..	1,441	1,114	2,092
In Holland ..	5	5	37
In U. S.	2,144	4,546	1,146
Total	5,379	8,223	5,624
Afloat, close of month			
Straits to London	1,917	1,448	3,340
To U. S.	5,543	5,520	1,930
Banca to Europe	315	.....	.....
Total	7,775	6,968	5,270
Total visible supply			
	Oct 31, 1915.	Sept 30, 1915.	Oct 31, 1914.
	13,154	15,191	10,894

STRAITS TIN PRICES IN NEW YORK

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.93
Apr.	42.20	44.02	49.12	36.10	47.97
May	43.10	46.12	49.14	33.30	38.78
June	46.16	47.77	44.93	30.65	40.37
July	42.96	44.75	40.39	31.75	37.50
Aug.	43.45	45.87	41.72	50.59	34.39
Sept.	39.98	49.18	42.47	32.79	33.13
Oct.	41.21	50.11	40.50	30.30	33.08
Nov.	43.13	49.90	39.81	33.50	.....
Dec.	44.97	49.90	37.64	33.60	.....
Year	42.68	46.43	44.32	35.70	.....

TIN.

price for their stocks, and said stocks would soon be lapped up, as all the demand would be centered on them. It would affect the output from Bolivia which is at present only smelted in England, but would not affect the supply to come from Bolivian ores smelted in America, preparations for which are being made by the American Smelting & Refining Company, and which should give us American smelted tin early next year.

The American Smelting & Refining Company have been negotiating for Nigerian tin ore but the British authorities have declined to allow the American Smelting & Refining Company to take tin ores out of the British Empire. Further advices received are to the effect that the American Smelting & Refining Company proposed to take the entire output of tin of the Nigerian producers, but the Nigerian government has vetoed the whole business. The Straits Settlements are as much a portion of the British Empire as Nigeria, therefore the American smelters now being erected will have to depend entirely on Bolivian ore from present outlook.

Another feature that has been very prominent has been the fear that on account of the Balkan developments, transportation through the Mediterranean and Suez Canal might be endangered, and this with the fear of an export duty, has been a constant stimulant to the buyers in making purchases for what may be called "safe tin", namely, spot stocks here, and the supplies that have well passed the Suez Canal and Mediterranean, and considered safe from submarine attack.

The course of the market throughout the month has been that of a steady improvement in price with hardly any reactions. Opening at 32 $\frac{1}{4}$ c the market gradually strengthened to 33c by the middle of the month. Since then it having become evident that arrivals in October would be very small, and therefore our surplus stocks at the opening of November are considerably cut into, the advance has been more positive, and the month closed at 34 $\frac{3}{4}$ c with upward tendency.

Arrivals in October proved to be only 2,000 tons at eastern ports and 500 tons at Pacific ports, deliveries 4,900 tons, hence

American stocks have been reduced to normal proportions, namely, 2,144 tons on November 1st.

The visible supply of tin shows on that date 13,154 tons as compared with

15,191 tons October 1st,
10,894 tons November 1, 1914

With present price of tin at a comparatively low basis, say 35c, as compared with an average price of

35.70 in 1914
44.32 in 1913
46.43 in 1912
42.68 in 1911

and a visible supply of 13,154 tons as compared with average of 14,907 tons in 1914

12,377 tons in 1913
13,207 tons in 1912
16,404 tons in 1911

and general business in America improving.

TIN PRICES IN OCTOBER.

New York. — London —

Day.	Cents.	Prompts		Futures	
		£	s d	£	s d
1	32.25	150	0 0	151	5 0
2					
4	32.00	149	5 0	150	10 0
5	32.12 $\frac{1}{2}$	148	5 0	149	15 0
6	32.87 $\frac{1}{2}$	151	7 6	152	15 0
7	32.50	149	10 0	150	15 0
8	32.50	149	10 0	150	15 0
9					
11	32.75	149	5 0	150	17 6
12		149	5 0	150	10 0
13	32.75	149	0 0	150	10 0
14	32.87 $\frac{1}{2}$	150	0 0	151	15 0
15	32.87 $\frac{1}{2}$	150	0 0	151	15 0
16					
18	33.00	150	15 0	152	10 0
19	33.30	152	5 0	153	15 0
20	33.50	152	15 0	154	0 0
21	33.30	151	15 0	153	10 0
22	33.25	151	15 0	153	0 0
23					
25	33.50	153	15 0	154	10 0
26	33.70	154	15 0	154	15 0
27	33.62 $\frac{1}{2}$	154	10 0	154	15 0
28	34.12 $\frac{1}{2}$	156	5 0	156	0 0
29	34.75	158	15 0	158	5 0
30					
High	34.75	158	15 0	158	5 0
Low	32.00	148	5 0	149	15 0
Average	32.977	151	11 1	152	13 5

SPELTER.

the tin market may be called in a sound position.

In addition it must be remembered the chance of speculation in the metal which has been quite dead here and abroad for a year, is reviving. Also the article is in a position to become greatly excited and higher here at any moment, should an export duty be imposed, or should war developments in the eastern Mediterranean and Suez Canal result, in troubles in transportation.

Consumers are carrying fair stocks. General consumption is improving although just at present it is the off season with the tin plate mills. The new season's price will be fixed probably in the next three or four weeks, and should then lead to great activity with this interest.

TIN ANALYSIS COVERING NINE MONTHS.

L. Vogelstein & Company, New York, make the following analysis of tin statistics for the nine months January to September 30th:

Supplies—	1915. Tons.	1914. Tons.	Change. Tons.
Straits	50,062	46,849	I. 3,213
Australian	1,734	1,550	I. 184
Banca	10,347	8,924	I. 1,423
Billiton	1,586	1,309	I. 277
Standard	7,553	8,537	D. 984
	71,282	67,169	I. 4,113
Deliveries—			
United Kingdom ..	20,831	13,264	I. 7,569
Holland	4,020	10,997	D. 6,977
Continent	8,555	6,930	I. 1,625
	33,406	31,189	I. 2,217
U. S. A.	36,246	34,419	I. 1,817
	69,652	65,618	I. 4,034
Excess supplies over deliveries			79
Visible Supply—			
January 1	15,656	15,543	
September 30 ..	17,286	17,094	
Increase	1,630	1,551	I. 79
Prices—			
January 1, 1915 ..	32.25c	36.875c	
September 30, 1915	32.50c	31.00c	

These figures show that the first nine months of this year as compared with the same period last year show no change in the relative proportions of supply and demand.

SPELTER SITUATION.

The spelter market on October 1st opened dull at 14½c f.o.b. East St. Louis and eased off owing to lack of interest on the part of buyers to 13½c about the middle of the month. At this time a good demand set in for prompt and the desire to sell first quarter and first half of next year at heavy concessions which had for sometime been a feature now disappeared. The market by October 20th was strong at 13½c for spot, and with good demand for November and December but still no disposition to buy beyond those months. On October 22nd, the London market, which had previously been steadily declining, advanced £. 1. 1. £66 10s, indicating that we were soon to face a good demand from that quarter, which was realized during the last days of the month, and the course of the market since has been advancing prices here and abroad with considerable trading between dealers. There were also good export orders, and greater interest shown by American consumers, the month closed with prices as follows: 14½c for spot East St. Louis, 13½c for December, 12½c for first quarter 1916.

Although there has been some improvement in demand from American consumers, the sheet galvanizers have been especially backward in buying, and the policy among this class of buyers seems to be to avoid spelter for any delivery beyond November. The arrangement on which galvanized sheets is sold is such that the makers have to allow their customers a rebate if the price goes down and therefore they do not feel safe in buying spelter far into the future unless the situation clearly indicates higher prices. This method of selling sheets on a "heads you win and tails I lose" basis proved so costly to the manufacturers this year that one would suppose they would have found means to curtail it, but apparently not.

This trade has not recovered from the demoralization into which it was thrown last Summer by the sensational rise in spelter, but it is interesting to see how long the production and consumption of galvanized iron can continue to run on a basis of only 50%. This commodity is an absolute

SPELTER

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc since the beginning of 1915 together with the price of spelter ruling on the same day.

1915—	Sheet Zinc.	Spelter St. Louis.
January 19	9.25	6.10
January 21	9.50	6.75
January 26	10.00	7.31½
February 2	10.50	7.87½
February 8	11.00	7.93¾
February 8	11.50	8.00
February 12	12.00	8.25
February 19	12.50	9.25
March 1	13.00	10.25
March 5	13.50	11.00
April 22	13.75	12.12½
April 23	14.50	12.37½
April 27	15.50	13.75
April 28	16.00	13.75
April 30	17.50	13.75
May 18	18.50	15.12½
May 20	19.50	16.00
May 25	20.00	18.75
May 26	22.00	19.25
May 29	24.50	20.75
June 1	26.00	22.50
June 3	30.00	26.00
June 9	33.00	25.75
June 14	30.00	22.75
June 23	27.00	18.25
July 27	24.00	18.37½
August 6	21.00	16.12½
August 16	17.00	12.12½
August 23	15.00	12.00
August 24	16.00	12.75

LEAD (Monthly Averages.)

—New York*—			—St. Louis—		
1913.	1914.	1915.	1913.	1914.	1915.
Jan. 4.35	4.11	3.74	4.20	3.99½	3.57
Feb. 4.35	4.06	3.82	4.20	3.95	3.72
Mar. 4.35	3.97	4.03	4.21	3.8	3.98
Apr. 4.40	3.82	4.19	4.25½	3.70	4.11
May 4.36	3.90	4.23½	4.22	3.81	4.16
June 4.35	3.90	5.86	4.21	3.80	3.76
July 4.37	3.90	5.74	4.25	3.75	5.52
Aug. 4.63	3.90	4.75	4.56	3.73½	4.59
Sep. 4.75	3.86	4.62	4.62	3.67	4.53
Oct. 4.45	3.54	4.59½	4.31	3.39	4.51
Nov. 4.34	3.68	....	4.18	3.58	....
Dec. 4.06	3.80	....	3.94	3.67	....
Av. 4.40	3.87	....	4.26	3.74	....

* Trust price.

SPELTER (Monthly Averages.)

—New York—			—St. Louis—		
1913.	1914.	1915.	1913.	1914.	1915.
Jan. 7.23	5.33	6.52	7.04	5.14	6.33
Feb. 6.49	5.46	8.86	6.25	5.27	8.61
Mar. 6.29	5.35	10.12½	6.08	5.15	9.80
Apr. 5.79	5.22	11.51	5.59	5.03	11.22
May 5.51	5.16	15.82½	5.31	4.96	15.52
June 5.23½	5.12	22.63	5.05	4.93	22.14
July 5.41	5.03	20.80	5.23	4.84	20.53
Aug. 5.80	5.63	14.45	5.64	5.45	14.19
Sep. 5.83	5.52	14.49	5.65	5.33	14.10
Oct. 5.47	4.99	....	5.27	4.81	13.89
Nov. 5.34	5.15	....	5.15	4.97	....
Dec. 5.22	5.67	....	5.03	5.49	....
Av. 5.80	5.30	....	5.61	5.11½	....

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan. 5.77	6.78	7.56	5.54	6.55	
Feb. 5.78	6.85	6.81	5.70	11.85	
Mar. 6.01	7.17	6.56	5.59	12.15	
Apr. 5.85	7.07	6.08	5.50	13.85	
May 5.76	7.13	5.77	5.28	20.55	
June 5.89	7.25	5.50	5.37	25.60	
July 6.11	7.46	5.61	5.26	24.90	
Aug. 6.29	7.34	5.99	5.66	19.30	
Sep. 6.29	7.72	6.13	5.91	17.85	
Oct. 6.49	7.83	5.74	5.23	16.85	
Nov. 6.90	7.74	5.60	5.38	....
Dec. 6.81	7.65	5.44	5.90	....
Av... 6.16	7.33	6.06½	5.53½	....

SPELTER PRICES IN ST. LOUIS.

Extreme fluctuations of Prime Western Spelter, East St. Louis delivery, by months and years:

— 1914 —			— 1915 —		
High.	Low.	Av'ge.	High.	Low.	Av'ge.
Jan. 5.25	5.10	5.14	7.62½	5.55	6.33
Feb. 5.35	5.20	5.27	10.00	7.65	8.62
Mar. 5.22½	5.12½	5.15	11.00	8.87½	9.80
Apr. 5.12½	4.85	5.03	14.00	9.25	11.22
May 5.51	5.16	15.82½	5.31	4.96	15.52
June 4.97½	4.82½	4.93	27.00	17.50	22.14
July 4.95	4.80	4.84	22.75	17.75	20.53
Aug. 6.00	4.70	5.45	18.00	10.75	14.19
Sep. 5.85	4.95	5.35	15.25	13.37½	14.10
Oct. 5.00	4.60	4.81	14.62½	13.25	13.89
Nov. 5.20	4.80	4.97	....	....	....
Dec. 5.65	5.20	5.49	....	....	....
Year 6.00	4.60	5.11½	....	....	....

SPELTER.

necessity and experiments to substitute other commodities have not been a success, the production and consumption of iron and steel after being a year ago only 25 to 30% of normal, has advanced now to a position where it is only with the greatest difficulty that the demand can be met, and we predict that we are facing a great change in the production and consumption of galvanized iron.

This year the sheet galvanizers have generally followed a hand-to-mouth policy but in so doing they incurred so much difficulty in getting spelter when needed and were forced to pay such high premiums at various times, that it is not likely that they will continue the same policy, particularly as they find their business improving. The prospects therefore are that a good sized buying movement will take place before long, and as sellers are ready for the business there should be no difficulty in arriving at a satisfactory trading basis.

There is every indication of the market going higher, but it will be controlled largely by the course of the foreign market, the demand from that quarter affording the principal stimulus for the recent advance in prices. It is to be noted however, that on account of the extreme prices that High Grade spelter for munition purposes has been commanding, many smelters have devoted a part of their capacity to its production, and this has cut down the amount of ordinary Prime Western spelter being produced. There are indications that the production of High Grade is going on in excess of probable demand and whereas not so long ago Brass Special metal was hard to get at 5c per pound over Prime Western, to-day it can be obtained at only 1c to 1½c difference in price.

The new spelter plant of the U. S. Steel Corporation at Donora, Pa., where they will produce the bulk of the spelter they will need for their requirements is practically completed. It is estimated that the Corporation consumes one-fifth of American consumption of spelter. A record for quick construction has been accomplished. Just four months and ten days after workmen began removing several large piles of ore, on the site now occupied by the new \$3,000,000 plant of the American Steel & Wire Com-

pany the big works were practically finished and the first tonnage of spelter turned out. They expect to use Australian concentrates and have already received large arrivals.

These concentrates are also being sold to other American smelters, but so far have made little impression on the American ore market, so heavy has been the demand made on the Joplin and other American ore districts.

While the market on Prime Western continues an advancing one, having in the opening week of November gone up to

15¼c for spot,

14¾c for December,

14¼c for January,

there are some who believe a sensational decline will take place in the metal. This is quite likely, but when? Certainly there seems little chance during the next three months. We give elsewhere some of the arguments being given for the claim that spelter is in an absolutely unsound condition.

SPELTER PRICES IN OCTOBER.

Day.	Cts. New York.	Cts. St. Louis.	£ s d London.
1		14 18 3/4	67 10 0
2			
3			
4	14 50	14 06	67 10 0
5		14 00	69 0 0
6		14 00	69 0 0
7		13 93 3/4	69 0 0
8		13 75	68 5 0
11		13 37	64 0 0
12			63 10 0
13		13 37	64 15 0
14		13 37	63 10 0
15		13 13 3/4	63 10 0
18		13 13 3/4	63 0 0
19		13 50	63 0 0
20		13 62	63 0 0
21		13 75	63 10 0
22		14 00	66 10 0
25		14 25	69 10 0
26		14 51	68 10 0
27		14 43 3/4	68 10 0
28		14 56 1/2	70 10 0
29		14 50	71 10 0
High		14 62	71 10 0
Low		13 25	63 0 0
Average			68 10 5

SPELTER

WHY SPELTER IS AT TOP.

A member of the New York trade under date of Oct. 30th, discusses the spelter situation as follows: It might be mentioned herein that since then prices have advanced nearly 1c. per lb.:

"Fundamental conditions are frequently ignored, although they alone furnish a trustworthy guide to future developments. A year ago higher prices were distinctly foreshadowed. But they were slow in materializing. Within thirty days after war broke out, spelter had advanced from 4½c. to 6c. a pound. In another thirty days it was back to pre-bellum levels and the year closed with spelter at 5½c. All this time the dial of fundamental conditions pointed to higher levels but the trade refused to see, or seeing, refused to believe.

"To-day the situation is reversed. Fundamentals point to lower prices. But will the trade see? And seeing will it believe?

"A year ago the supply from two great foreign spelter exporting nations was suddenly cut off from the world's markets. America could not meet the deficiency—all at once. Since then America has speeded up production to equal demand.

"We are now producing spelter at the rate of 500,000 tons per annum. Of this about 100,000 tons will be exported, leaving 400,000 tons for domestic consumption. Estimating the brass demand at twice normal (ordinary demand being 100,000 tons) and galvanizing demand at half normal (ordinarily 200,000 tons) gives a net total consumption of 300,000 tons, and a surplus at the present rate of production of 100,000 tons per annum.

"Present production 'at the rate' of 500,000 tons is an ultra-conservative estimate. Earlier this year it was at a much less rate but on the other hand early next year it will be at a much higher rate. There is every indication that next year will see a 600,000 ton production which would mean, on present consumption, a 200,000 ton annual surplus. This surplus has not yet begun to accumulate except in the high grade metal. But under the inexorable law of fundamentals it must make itself felt and in our judgment the time is not far distant.

"One reason why the spelter market has not already yielded to the pressure of

fundamental conditions is that spelter like copper is in comparatively few hands making it easy to uphold prices,—for a time. But with the peace demand constantly diminishing and the war consumption at its maximum, it appears to be merely a question of time when producers will find their position untenable.

"Another reason is that the war has thrown the European markets open to American producers, and the latter are now able to bolster their position with sales to the home trade of large sales abroad, while at the same time they fill the foreigners with reports of an enormous demand here."

EXPORTS OF SPELTER.

For the first time the Department of Foreign Commerce has issued separate statistics covering the exports of zinc pigs and bars (spelter) and zinc plates and sheets. The report for July shows that the exports were as follows:

Pigs and bars—	Pounds.
From domestic ore	2,724,835
From foreign ore	3,752,248
Plates and sheets	9,237,519
Total	15,714,602

For the seven months ended July the exports of zinc bars, pigs, sheets and plates for the past three years compare as follows:

	Pounds.	Value.
1915	144,450,417	\$13,908,012
1914	1,973,024	116,972
1913	14,024,248	860,180

BRITISH SPELTER IMPORTS.

Imports of spelter into the United Kingdom, in tons of 2,240 pounds, have been as follows in calendar years:

	1912.	1913.	1914.
Germany	54,686	64,179	33,491
Holland	9,992	13,301	12,189
Belgium	57,207	53,500	27,312
France	5,983	5,915	3,183
Austria-Hungary	165	255	92
United States ...	4,915	4,670	35,068
Other foreign countries	2,888	1,665	2,524
Australia	102	186	216
New Zealand	34	81	98
Canada	997	962	1,319
Other British possessions	349	350	367
Total	137,268	145,004	115,859

LEAD.

LEAD SITUATION.

The features of the Lead market in October have been as follows: increasing demand for home consumption in correspondence with the general business improvement; war munition orders, the large demand for sheet lead being a special feature, also a good foreign demand, especially from Russia. This has kept the independents well supplied with orders and well sold ahead, and has prevented any metal accumulating in second hands, consequently the market has been in complete control of the American Smelting & Refining Company. The changes in price have been made by this interest. The market opened on October 1st at 4½c. N. Y. They advanced their price to 4.75c on October 21st and again to 4.90 on October 29th. On November 4th a further advance to 5c. N. Y. was made, and market closes strong, with indications of still better prices to come.

One of the reasons mentioned for the good foreign demand is that the metal is

being used to replace copper for roofing purposes, the latter metal being so much required for munitions in some of the European countries. The principal foreign demand of course abroad is for war munitions.

There are no statistics available as to output, consumption and stocks, as the Trust does not seem to believe in publicity, but there is every reason to believe the lead situation is a sound one at present.

LEAD PRICE CHANGES.

The changes in the Trust price at New York since January 1, 1915, have been as follows:

January 1	.....	.....	3.80
January 12	.....	Reduced	10.11 3.70
January 28	.....	Advanced	10.11 3.80
February 16	.....	"	05.11 3.85
March 1	.....	"	05.11 3.90
March 5	.....	"	05.11 3.95
March 16	.....	"	15.11 4.10
March 24	.....	"	05.11 4.15
April 1	.....	"	05.11 4.20
May 25	.....	"	10.11 4.30
May 27	.....	"	10.11 4.40
May 28	.....	"	10.11 4.50
May 29	.....	"	25.11 4.75
June 1	.....	"	15.11 4.90
June 3	.....	"	10.11 5.00
June 4	.....	"	20.11 5.20
June 7	.....	"	30.11 5.50
June 8	.....	"	25.11 5.75
June 9	.....	"	25.11 6.00
June 10	.....	"	25.11 6.25
June 11	.....	"	25.11 6.50
June 12	.....	"	50.11 7.00
June 15	.....	Reduced	15.11 6.25
June 18	.....	"	25.11 6.50
June 19	.....	"	25.11 6.75
July 30	.....	"	50.11 7.50
August 2	.....	"	50.11 7.25
August 7	.....	"	50.11 7.00
August 9	.....	"	50.11 6.75
August 10	.....	"	25.11 6.50
August 25	.....	Advanced	05.11 6.00
August 26	.....	"	10.11 5.75
August 27	.....	"	30.11 5.50
September 1	.....	Reduced	20.11 4.70
September 14	.....	"	20.11 4.50
October 21	.....	Advanced	25.11 4.75
October 29	.....	"	15.11 5.00
November 4	.....	"	05.11 5.00

LEAD PRICES IN OCTOBER.

Day.	New York.*	St. Louis.	London.
Cts.	Cts.	£ s d	
1	4.55	4.45	24 2 6
4	4.55	4.45	23 12 6
5	4.52	4.42	23 8 9
6	4.52½	4.42	23 7 6
7	4.52	4.42	23 12 6
8	4.52½	4.42½	23 12 6
11	4.52½	4.41½	23 16 3
12	.....	.....	23 15 0
13	4.52½	4.41½	23 12 6
14	4.52	4.41	23 16 3
15	4.52	4.41	24 2 6
18	4.52½	4.41	24 11 3
19	4.52	4.41	24 8 9
20	4.52½	4.41	24 10 0
21	4.75	4.66	24 6 3
22	4.75	4.66½	24 3 9
25	4.75	4.66½	24 7 6
26	4.75	4.66½	24 8 9
27	4.73½	4.66	24 5 0
28	4.73½	4.66½	24 2 6
29	4.90	4.82½	23 15 0
High	4.90	4.82½	24 11 3
Low	4.50	4.40	23 7 6
Average	4.61	4.51	23 19 10

* Outside market.

ANTIMONY — ALUMINUM

ANTIMONY SITUATION.

The Antimony market has again become a very interesting one and prices advanced sharply during the month. On October 1st the market opened at 28 $\frac{3}{4}$ c. for Chinese and Japanese grades (the only foreign grades that have reached this market since the embargo was put on Antimony by the British Government. The market started to improve during the second week of the month on the news that the Panama Canal had been closed, and as the bulk of our supplies from China and Japan come via the Canal a serious delay in getting supplies might ensue. By middle of the month, in spite of good spot stocks, prices had strengthened to 29c., and since then there has been a rapid rise to 35 $\frac{1}{2}$ c. at which the month closes. A large business has been done, Canada especially being a free buyer for war munitions and taking spot metal which at the close of the month has greatly reduced stocks here, and has led to actual scarcity.

Futures have also been in good demand and Japan and China very reluctant sellers. Importers are holding futures at about equivalent to the spot market, but second hands have taken profits freely at 1 to 2c. per lb. under importers quotations. The Panama Canal promises to remain closed until end of the year, but shipments are being forwarded by rail at a considerable increased cost.

The domestic consumers, including the makers of shrapnel balls, appear to have covered their requirements well in advance and have not been rattled into buying on this last advance which was caused by very heavy orders for Canadian account. It is said that the principal shrapnel makers have contracted for all or nearly all the antimony they will require during the next six months.

It is estimated that the consumption of antimony for war purposes in this country and Canada, amounts at present to about 600 or 700 tons per month, which is equal to the entire consumption in this country in peace time. The domestic consumption otherwise is probably not over 50% of normal, due to the high price of the metal,

and dullness in several domestic industries using antimony.

American antimony is beginning to come on the market in moderate quantities, the production being at the rate of 100 to 150 tons per month, and while this metal is claimed to be equal or superior to either Chinese or Japanese the price is a little lower.

ALUMINUM SITUATION.

The most important event to note during the month of October in the aluminum situation is the purchase by the Aluminum Company of America of the entire French holdings in a hydro-aluminum plant near Whitney, N. C. Work on this plant was started early in 1914 but was stopped shortly after the outbreak of the war in Europe. It is understood that the Aluminum Company will complete it as soon as possible. It will be several months before any shipments can be made from this new plant but the fact that certain relief is in sight tends to lessen the probability of a crazy runaway market during the next six months.

In the meantime the product of the domestic maker is difficult to obtain, supplies in second hands are gradually being absorbed and prices have worked up from about 50 cents early October to 56 cents at the close for No. 1 Virgin. Pure aluminum and 98-99% is obtainable at 55 cents.

Actual conditions have not improved in any way. The American maker is reported to be pretty well sold up for six months ahead and the nominal quotation is unchanged at 35 cents, but no definite deliveries are promised. It is rumored that sales of No. 1 Virgin have been made by the company lately at 55 cents, but this we are unable to confirm.

The supply is, most assuredly limited, some of the demand has been eliminated on account of the high prices, but against this there is an export demand that seems to be gradually increasing.

The exports in September were 181 tons and during October the exports were 305 tons.

ANTIMONY — ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	32.07
May	9.48	8.00	8.77	7.29	39.75
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av..	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Halletts antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	29.41
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av..	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY.

Average monthly price of Chinese and Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93½
Apr.	8.34	6.87	7.82	5.82	23.97
May	8.06	6.98	7.75	5.78	34.71
June	7.38	7.07	7.62	5.62½	36.53
July	7.32	7.37	7.55	5.44	35.98
Aug.	7.22	7.58	7.48	13.05	32.119
Sept.	7.13	8.00	7.31	9.79½	28.50
Oct.	6.94	9.11	6.46	11.64	30.96
Nov.	6.94	9.11	6.28	14.14	.....
Dec.	6.97	9.05	6.05	13.15	.....
Av..	7.48	7.63	7.43	8.53½	.....

ALUMINUM, SILVER and ANTIMONY PRICES IN OCTOBER.

	Aluminum.	— Silver —		Antimony*
	N. Y.	N. Y.	London.	N. Y.
Day.	Cents.	Cents.	Pence.	Cents.
1	49.50	49½	24	28.37½
2	49.50	49½	24	28.37½
3	49.50	49½	24	28.37½
4	49.50	49½	24	28.37½
5	50.50	49½	24	28.12½
6	51.00	49½	24	28.12½
7	50.00	49½	24½	28.12½
8	50.00	49½	24	28.12½
9	50.00	49	24½	.....
10	50.00	49	24	28.37½
11	50.00	49	24	28.37½
12	50.00	49	24	28.37½
13	50.50	49	24	28.62½
14	51.00	49	24	28.62½
15	51.50	49½	24	28.62½
16	51.50	49½	24	28.62½
17	51.50	49½	24½	29.25
18	51.50	49½	24½	29.75
19	51.50	49½	24½	30.75
20	51.50	49½	24½	30.75
21	51.50	49	24½	34.00
22	51.50	49	23½	35.50
23	51.50	48½	24	.....
24	51.50	48½	24½	35.50
25	51.50	48½	24½	35.50
26	51.50	48½	24½	35.50
27	51.50	48½	24	35.00
28	51.50	49½	24½	35.50
29	51.50	49½	24½	35.50
30	51.50	49½	24½	35.50
High	51.50	49½	24½	36.00
Low	49.00	48½	23½	28.00
Av'ge	51.13	49.85	24.25	30.96

* Chinese and Japanese.

ALUMINUM AND SILVER PRICES.

	— New York —			
	— Aluminum —		— Silver —	
	1913.	1914.	1915.	1914.
Jan.	26.31	18.86	19.01	62.95
Feb.	26.29	18.80½	19.20	61.64
Mar.	26.72	18.30	18.95	57.87
Apr.	26.91	18.08	18.83	59.49
May	25.95	17.93	21.85	60.36
June	24.79	17.82	29.66	58.99
July	23.34	17.59	32.50	58.72
Aug.	22.73	20.38	34.00	59.09
Sep.	22.00	19.28½	46.75	60.64
Oct.	20.32	18.25	54.17	60.79
Nov.	19.40	18.83	58.99	49.10
Dec.	18.77	19.02	57.76	49.38
Av.	23.65	18.59½	59.79½	54.81

Review of Joplin Ore Market.

The zinc blende ore market for the month of October was one of unusual strength and demand for high grade ore. The conditions governing the production were unusually favorable for the producers who were able to produce a considerably larger tonnage than normally. Every effort was put forth to increase the production in order to reap the benefit of the unusually high prices now prevailing. The general tenor of the market was higher than the previous month. The ore market the first part of the month was lower in price than at any other period, zinc ore selling as low as \$70 per ton for low grade and \$80 for high grade. The market closed the last part of the month covering a base range of \$80 to \$90 per ton on a basis of 60% zinc with ore of all grades in good demand. The local buyers were strongly inclined to hold down the market to the lowest possible level and succeeded in securing some ore during the first part of the month at prices several dollars per ton less than the spelter market and local demand for ores warranted. The producers, however, were not willing to submit to such buying tactics and refused to sell their ore on first quotations, many of them holding their product over a period of three weeks, selling the latter part of the month. The total tonnage of ore sold for the month was 39,749 tons at an average price of \$80.10 per ton, or a total value of \$2,466,600, which is an increase over the previous month's production of 7,602 tons and \$1.48 per ton, the ore sold by weeks was 6,159 tons. This month's production makes a total for the year covering the ten months' period just passed of 238,280 tons at an average price of \$74.41 per ton, giving a valuation of \$17,731,370, which is an increase over the production covering the same period in 1914 of 28,444 tons and an increase in the price of \$38.98 per ton. During the month of October a greater tonnage of zinc ore was produced, and sold than any other month during the year and showing a smaller surplus than for several months past, the estimated surplus being 3,500 tons, which is 1,500 tons less than the previous month.

The calamine ore market was correspondingly good, following closely the condition

of the zinc blende market throughout the month. The price of calamine ore at present is more in proportion to the amount of metal contained in the ore than for the blende, the spread between these ores is usually from \$20 to \$25 per ton, but for the last several months the spread has been as low as \$10 and never over \$20 per ton. This condition is doubtless accounted for by the fact that many smelters are buying calamine ore who formerly bought only blende. The lowest price paid for this ore during the entire month was \$45 per ton with the highest price being \$65 per ton on a basis of 40% zinc. The production for the month was good, the total sales being 1,406 tons at an average price of \$52.10 per ton, giving a total valuation of \$29,526. This month's production makes a total for the year of 16,665 tons, at an average price of \$45.86 per ton, giving a total value of \$763,749, this total showing an increase over the production covering the same period in 1914 of 1,236 tons at \$24.03 per ton greater, giving a total increased valuation of \$426,840.

The market for lead ore was good, although the price was comparatively low. Demand was good each week, the buyers taking all the ore that could be bought at prevailing prices but not making any effort to secure a large tonnage, being content to take only what ore could be bought on the low market. The sales for the month were 4,540 tons at an average price of \$51.28 per ton, giving a valuation of \$232,811. The lowest price paid for lead ore was \$50 per ton, the highest being \$55 per ton. This month's production makes a total for the year of 37,109 tons, at an average price of \$51.67 per ton, giving a total valuation of \$1,917,467, in comparison with the production covering the same period in 1914. It is 339 tons and \$539 per ton greater. The sales of this ore cover practically the total production each month, the estimated surplus being 1,200 tons.

The total value of all ores sold in this district for the ten months' period just passed is \$20,412,578, which is greater than the total production for the year 1914 by \$8,814,622.

LIST OF ACTIVE ZINC SMELTERS IN THE U. S., SHOWING CAPACITY IN 1914, BY COMPANIES AND STATES.

From the U. S. Geological Survey Compiled March 1915.

(Includes plants working on ore alone, on ore and dross, and on drosses alone.)

Company and State.	Location.	And Plant.	Retorts at close of 1914	Addition of retorts condensed-plated in 1915.
Colorado.				
United States Zinc Co.	Pueblo		2,240	320
Illinois.				
American Zinc Co., of Illinois	Hillsboro	A	1,600	
Collinsville Zinc Smelting Co.	Collinsville		1,500	
Granby Mining & Smelting Co.	East St. Louis	A	1,620	1,020
Hegeler Zinc Co.	Danville	A	1,600	
Illinois Zinc Co.	Peru	A	1,640	
Mattheisson & Hegeler Zinc Co.	La Salle	A	6,168	
Missouri Zinc Co.	Beckmeyer		192	100
Mineral Point Zinc Co.	Depue	A	2,008	
National Zinc Co.	Springfield	A	2,200	
Robert Lanyon Zinc & Acid Co.	Hillsboro	A	1,840	800
Sandoval Zinc Co.	Sandoval		1,000	900
Total			25,864	2,480
Kansas.				
American, Zinc, Lead & Smelting Co.	Caney		1,506	1,524
Do	Dearing		1,480	
Chanute Spelter Co.	Chanute		1,280	
Cherokee Smelting Co.	Bruce		896	
Edgar Zinc Co.	Cherryvale		4,800	
Granby Mining & Smelting Co.	Neodesha		3,760	
Joplin Ore & Spelter Co.	Pittsburgh		1,120	224
Pittsburgh Zinc Co.	Pittsburgh		896	448
Prime Western Spelter Co.	Gas	A	4,868	
United States Smelting Co.	Altoona		3,960	660
Do	Iola		1,400	2,040
Do	La Harpe			1,924
Total			32,056	6,820
Missouri.				
Edgar Zinc Co.	St. Louis		2,000	
Nevada Smelting Co.	Nevada			672
Oklahoma.				
Bartlesville Zinc Co.	Bartlesville ..		5,184	
Do	Collinsville ..		8,064	2,016
Kusa Spelter Co.	Kusa			3,000
Lanyon-Starr Smelting Co.	Bartlesville ..		3,456	
National Zinc Co.	Bartlesville ..		1,970	
Tulsa Fuel & Manufacturing Co.	Collinsville ..		6,232	
United States Zinc Co.	Sand Springs ..		1,800	1,600
Total			27,106	6,916
Pennsylvania.				
American Steel & Wire Co.	Donora	A		9,600
American Zinc & Chemical Co.	Lancaster	A	1,648	1,648
New Jersey Zinc Co. (of Pennsylvania) ..	Palmerton ..		6,720	
Total			8,368	11,248
West Virginia.				
Clarksburg Zinc Co.	Clarksburg ..		1,106	602
Grasselli Chemical Co.	Clarksburg ..	A	1,160	
Do	Meadowbrook ..	A	6,912	1,680
Total			15,168	2,592
Total for all States			139,642	14,048
PLANTS WITH SPECIAL RETORTS.				
Michael Hayman & Co.	Buffalo, N. Y.			12
Trenton Smelting & Refining Co.	Trenton, N. J.			80
Wm. Cramp & Sons Ship & En. Bldg. Co.	Philadelphia, Pa.			12

BRANDS OF COPPER.

United States.

L A K E .

	Refined at:	Branded.
Adventure	Hancock, Michigan.	Adv. C. Co.
Atlantic	Houghton, Michigan.	A
Calumet & Hecla	Hubbell, Michigan.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	B. L.
Centennial	Hancock, Michigan.	C. C. M. Co.
Copper Range	Houghton, Michigan.	C. R.
Franklin	Hancock, Michigan.	F. M. Co.
Isle Royale	Dollar Bay, Michigan.	I. R. C. Co.
Mass.	Hancock, Michigan.	Mass.
Michigan	Houghton, Michigan.	M. C.
Mohawk	Houghton, Michigan.	M. M.
Osceola	Dollar Bay, Michigan.	T. O.
Quincy	Hancock, Michigan.	Q.
Tamarack	Dollar Bay, Michigan.	T. O.
Victoria	Hubbell, Michigan.	V. C.
Winona	Hubbell, Michigan.	W. A.
Wolverine	Houghton, Michigan.	W.

ELECTROLYTIC.

	Refined at:	Branded.
American S. & R. Co.	Perth Amboy, N. J.	P. A.
Balback S. & R. Co.	Newark, N. J.	Cathodes only.
Baltimore Copper Works	Baltimore, Md.	B. E. R.
Boston & Montana Co.	Great Falls, Mont.	B. & M.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Copper Queen	Laurel Hill, L. I.	C. & Q.
Miami	Laurel Hill, L. I.	A. L. S.
Nichols Copper Co.	Laurel Hill, L. I.	L. N. S.
Orford Copper Co.	Chrome, N. J.	O. E. C.
Raritan Copper Works	Perth Amboy, N. J.	N. E. C.
U. S. Metals Ref. Co.	Chrome, N. J.	D. R. W.
United Metals Selling Co.	Laurel Hill, L. I.	R. M. C.

CASTING.

	Refined at:	Branded.
Balbach S. & R. Co.	Newark, N. J.	N. B. C.
Boston & Montana Co.	Great Falls, Mont.	M. A.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Duquesne Reduction Co.	Pittsburgh, Pa.	D. E. C.
Nichols Copper Co.	Laurel Hill, L. I.	C. N. C.
Phelps, Dodge & Co.	Laurel Hill, L. I.	P. D. Co.
Tottenville Copper Co.	Tottenville N. Y.	C. T. C.
U. S. Metals Ref. Co.	Chrome, N. J.	D. S.
White & Bro., Inc.	Philadelphia, P.	W. B.

The Steel and Metal DIGEST

VOL. V.

NEW YORK, DECEMBER 1915.

NO. 12.

Published Monthly by the American Metal
Market Company, 81 Fulton St., New York.
C. S. Trench, President,
C. S. J. Trench, Secretary and Treasurer.
Branch Office, 627 Oliver Bldg., Pittsburgh.

Subscription Price Two Dollars a year
for United States, Canada and Mexico, for
other countries \$2.25.

Advertising rates on application.

Entered at Post Office of New York as second class
mail matter.

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We Wish All Our Readers
A MERRY CHRISTMAS.

BUSINESS SITUATION AND OUTLOOK.

The past month has seen a rapid expansion in the improvement in business which began some months ago, influenced by war orders, a mounting foreign trade balance, and the sound fundamental conditions that existed even when we were in the throes of depression. Our country was sound and prosperous before, but we did not know it, because of the dread that some commercial or national trouble might overtake us as the result of the war, and which dread paralyzed business confidence and initiative and made "safety first" the compass by which the entire country steered their business ship. Experience and time has proved that while the war lasts and our country is not involved extraordinary business opportunities and profits have and will come to us from the misfortunes of the warring nations, and that we are falling heir to the greatest material sacrifice England has made, her position at the head of the table of the world of finance; that those natural advantages we possess are through the disasters of our neighbors being brought into action and power, in a way that other-

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wise would have been a matter of years of slow growth.

The imagination has become excited at our position and prospects; confidence has succeeded timidity: all the strong points in our financial and commercial situation have been allowed to assert themselves and a sensational recovery has swept over the land. Whereas activity a few months ago, was confined to industry, engaged in meeting foreign war requirements, we now see industries entirely dependent on home requirements enjoying great prosperity and confidence and orders increasing with every day.

The Change in Business is Built on Real Foundation.

If there was any doubt as to its reality and that it is not a temporary or fleeting movement, based and flourishing on sentiment, one has only to turn to what has happened in our basic industry—iron and steel—during the past two months. The production of iron to the highest rate in the history of the country, which is the position today, does not take place unless under it there is a power and demand which has for its foundation something very real and legitimate. In part we are making up for the vacuum created by the abnormal condition in output and consumption of the past two years but there is something more than this. It is a real condition in the commodity, based on legitimate demand, and this condition in iron and steel means something very real and legitimate in other business conditions. The developments in the past month have been sensational. If what has taken place had occurred with the world at peace, in other words, in a normal state, there could only be one opinion, and that is that

we were entering into a great business boom, and from expressions we have heard from many in the trade, this seems to be a prevalent opinion in many quarters.

It is because we are not in normal times but in extraordinary and unprecedented times the world over, that we do not share this opinion. As we have said before, there is a real and legitimate reason for what we are experiencing. It would have come in part at this time, war or no war. In July, 1914, conditions showed signs of improving. A period of serious unemployment had not resulted in wage reductions, indicating sound economic conditions underlying. Business was thoroughly liquidated and there was no speculation. Business interests were coming to view the Washington administration with less alarm. Since then conditions have arisen which in normal times would make better business, including in particular the harvesting of two very bountiful crops. It is simply an incident of the war that there has been a particularly good market for our commodities. The country had been running with bare shelves, the hand-to-mouth policy had been played to the limit, idle money had accumulated that under ordinary conditions would have gone into necessary new improvements and additions of plants of a nation growing in population and requirements and the carrying of goods in normal stocks. There was bound to be an end to all this and it has come. Where we differ with many is in the belief that having in a short time jumped to where we are, our upward movement in activity, demand and advancing prices is to continue unimpeded; that we are now wound up to go

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easily for another year at least, if not much longer.

Zenith of War Orders Passed.

It must not be forgotten that present conditions are partly the result of extraordinary conditions and demand, and by no means certain to continue. The end of the war will make a great change, and even holding the opinion that the war will continue for another year or more, we are sure we are facing a gradual curtailment in war orders. Anyone who has studied the enormous plans being made by the Allies, and especially England, to make at home what they have been buying from us, can have no other opinion, and with the warring nations it is not a matter of choice, but of necessity. It is impossible for them to continue the recent rate of purchases in America without facing bankruptcy, or in the case of the wealthier nation, piling up a debt to us, (if we are willing to trust them), that would enormously handicap their trade and recovery, when peace comes. Of course they must continue to get our food products, but we are discussing the iron and metal trade as it enters into munitions of war and other manufactured products.

Preparedness for Competition.

In our opinion, in addition to this, free trade in England in regard to commodities they can produce at home, will give place to a policy of protection in many cases. It may be turning the hands of the dial of trade policy backward, but if so, the awful calamity of war is responsible. We found protection necessary to create our infant industries. England, we believe, will find it now necessary, as far certainly as her manufactured products are concerned, in order to build up her dis-

organized trade and finance and protect her against the giant American manufacturer. After all this world cannot be run on theories—circumstances change conditions. Holding this future development as more than probable, it increases the necessity for finding an outlet in the future in countries that have in the past depended on England for their manufactured supplies. It is for that reason that we believe that the greatest and most far-seeing movement on foot to-day, on which our business futures as regards manufactured exports is concerned, is what is being done by the Foreign Trade Council, under the leadership of the President of our largest producer, the United States Steel Corporation, and our largest financial institution, the National City Bank of New York, and they should have the active support of every business man. We hear a great deal of America's leadership in world trade; if it comes it will be because we possess men who have seen the vision, and are practical enough to realize that it can only be realized when the road along which it must travel, has been cleared and made safe.

But we have degressed in part, although those who look below the surface of things must see, that if we are to continue our present prosperity, there is a need for preparedness. Whereas Europe, in time of war, is preparing for peace, we must in time of business peace and prosperity—and what is virtually lack of competition—prepare for the trade war that is certainly before us. Neither must we be deceived by the present ease of money to take any liberties with the financial situation. We are at present oversupplied as the result of bountiful crops,

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war order profits and the accumulation caused by the check given to new enterprise in the opening year of the war. Present low rates are certain to disappear with the demand that must follow active business, high prices, and the heavy expenditures both for the safety of our national position and the expansion of our starved railroads and other business and manufacturing facilities.

Higher Money Rates a Certainty.

The world is going for years to travel on a higher rate for money, and is about to face a problem in financing that will test all the facilities, power and brain of the world, and we will not be exempt. Our plea therefore, is not to allow ourselves to be carried away by a false feeling of security. Conservativeness must be the watchword for years to come and it need not deaden enterprise but should regulate it.

Prospects for December.

We are entering upon the closing month of what has been an extraordinary year for profits and opportunities in this country and it has been taken advantage of. There is bound to be a disposition to go slowly about entering into new enterprises and obligations. The last trick is being played in what has been an exciting game. The score will soon be added up and balance sheets awaited. It will be quite natural if the desire should exist to show actual cash balances instead of open accounts, and to turn paper profits on future contracts, into actual profits. This is the attitude in any December; we think it will be more so this year. We therefore expect it to be a quiet month in trade with reactions in some commodities, especially those of a spec-

ulative nature. Then, if the New York opening is as promising as present indications are, January will probably bring a new movement, backed with greater courage and confidence than any we have had, as nearly every business will have made a good credit on their profit and loss account.

No Peace in Metal Fluctuations.

In the metal trade one has only to look back at the extraordinary fluctuations since the war began, to realize that as long as it lasts, there is to be no peace as regards violent changes. Metals enter closely into the extraordinary requirements of times like the present, and are likely therefore to be subject to extraordinary demands. Also let it not be forgotten that with embargoes and government regulations, it is not impossible that still greater fluctuations will take place.

A Safe Rule to Follow.

There would seem to be but one safe rule to be followed by dealers and manufacturers, while the war lasts, and that is to carry safety stocks, and under no conditions be tempted to be "short" even at times when it may look like a declining market. Also it is to be remembered that never before in their experience, has the mind of business been under such a strain or so sensitive or easy to be excited. Statistics or prospects may prove a very poor guide for determining what prices may rule. It is a case of "nothing as usual". As we said before, safety lies in selling no commodities, the raw material for which has not been provided for, both as regards delivery and price.

Effect of Sixteen Months of the War On Metals.

	1914			1915		
	10 days			After		
	One month	after war	6 mos.	9 mos.	1 year	16 mos.
	before war, July 1.	declared, Aug. 10.	later, Jan. 1.	later, May 1.	later, Aug. 1.	of war, Dec. 1.
Copper						
Lake	13.87 $\frac{1}{2}$	12.62 $\frac{1}{2}$	13.10	18.75	18.37 $\frac{1}{2}$	20.00
Electrolytic ...	13.55	12.45	12.85	18.50	18.12 $\frac{1}{2}$	19.87 $\frac{1}{2}$
Casting	13.35	12.25	12.75	17.50	17.00	19.50
Tin	31.15	65.00	33.25	40.25	35.00	39.00
Lead (St. Louis) .	3.75	3.70	3.60	4.10	5.15	5.22 $\frac{1}{2}$
Spelter (St. Louis)	4.85	5.12 $\frac{1}{2}$	5.55	13.75	17.87 $\frac{1}{2}$	18.00
Antimony, (Chin. & Jap.)	5.50	17.50	13.25	34.00	34.75	40.00
Aluminum, (98 to 99%)	17.62 $\frac{1}{2}$	20.50	19.12 $\frac{1}{2}$	19.37 $\frac{1}{2}$	32.50	59.00

Extreme Fluctuations During the Past Sixteen Months of War. July 31, 1914 to December 1, 1915.

	High.	Low.	Average.
Copper			
Lake	20.62 $\frac{1}{2}$	11.30	15.82
Electrolytic	20.50	11.10	15.62
Casting	19.62 $\frac{1}{2}$	11.00	15.09
Tin	65.00	28.50	37.88
Lead (St. Louis)	7.50	3.35	4.22
Spelter (St. Louis)	27.00	4.60	11.20 $\frac{1}{2}$
Antimony (Chinese and Japanese) ...	38.00	5.30	23.54
Aluminum (98 to 99%)	57.00	17.37 $\frac{1}{2}$	26.04 $\frac{1}{2}$

High, Low and Average Prices for the 10 Years Preceding Declaration of War.

	High.	Low.	Average.
Copper—			
Lake	26.25	12.12 $\frac{1}{2}$	15.55
Electrolytic	26.00	12.00	15.36 $\frac{1}{2}$
Casting	25.25	11.87 $\frac{1}{2}$	15.11
Tin	51.05	25.75	36.48
Lead (St. Louis)	6.35	3.47 $\frac{1}{2}$	4.55
Spelter (St. Louis)	7.50	4.00	5.64
Antimony (Chinese and Japanese) ...	24.12 $\frac{1}{2}$	6.00	*8.52
Aluminum (98 to 99%)	28.00	18.50	†22.53

* For seven years. † For five years.

BUSINESS TRENDS.

THE STOCK MARKET.

During November the stock market showed a steady declining tendency despite satisfactory trade conditions, flattering railroad earnings, phenomenal activity in iron and steel, etc., which would normally create bullish sentiment in Wall Street. This was attributed partly to continued liquidation; to foreign selling and the approaching opening of Congress.

The recent speculative buying movement has apparently subsided and war stocks have exhibited a further reactionary course. Exaggerated war profits will not be repeated. Peace talk is plentiful, but the chief belligerents show no disposition to come to terms, and the outlook is for the struggle to continue through the winter at least, although surprises may happen at any date.

Trading will hardly show much vigor until the probable course of events at Washington are better understood. Discussion of the President's taxation plans has been extensive enough to take the edge off any probable market influence they might have. Wall Street sees no objection to them and the manufacturers interested will scarcely interpose objections.

NEW INCORPORATIONS REACH LARGE TOTAL.

Continued activity is noted in the way of new promotions. Papers filed in the Eastern States for companies with \$1,000,000 capital or over in November represented \$190,075,000. This is the largest total for this particular period in years. In November, 1914, for example, it was \$81,650,000. The October figures were \$208,695,000.

Companies incorporated in all States, including those of the East, aggregated 243,667,200. This compares with \$130,240,800 in November last year. In October the figures were \$266,701,000. Increased competition in various industrial lines is indicated in the returns.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States

during the last three years with an authorized capital of \$1,000,000 or more:

	1915.	1914.	1913.
Jan. ..	\$51,150,000	\$120,050,000	\$332,450,000
Feb. ..	53,950,000	51,575,000	191,500,000
Mar. ..	70,050,000	57,700,000	166,030,000
April ..	32,200,000	136,185,000	198,718,000
May ..	78,950,000	62,700,000	172,200,000
June ..	181,247,100	70,050,000	79,550,000
July ..	71,100,000	68,700,000	83,650,000
Aug. ..	67,100,000	50,600,000	63,500,000
Sept. ..	286,625,000	54,800,000	42,750,000
Oct. ..	208,695,000	35,487,500	70,856,300
Nov. ..	190,075,000	81,650,000	77,800,000
11 m. \$1,362,242,100	857,197,500	1,582,654,000	
Dec.	105,450,000	55,250,000	
Year	\$962,947,500	1,637,904,300	

EXPORTS SET NEW HIGH RECORD.

Exports of merchandise in October set up a new high record, and the excess of exports over imports also broke all records in that month, exceeding the total of September exports, hitherto the highest ever recorded, by about \$34,000,000, or 11%, and the total of imports in October by \$186,000,000, or 126%. By the addition of October's totals to those for the preceding 14 months of the war, a grand total for 15 months is reached in exports of \$3,779,855,561, as against an import total of \$2,099,494,839, an excess of exports of \$1,680,359,722. An average export monthly is shown for the 15 months of \$252,000,000, against \$140,000,000 of imports, and the average excess of exports for that period is \$112,000,000.

Our foreign trade for October and ten months compares as follows:

	1915.	1914.
October.		
Exports	\$334,638,578	\$194,711,170
Imports	148,529,620	138,080,520

Excess of exports \$186,108,958 \$56,630,650

Ten months ended October 31st:

	1915.	1914.
Exports ..	\$2,867,123,745	\$1,662,113,159
Imports	1,450,624,406	1,548,152,394

Ex. of exports \$1,416,499,339 \$113,960,765

Fifteen months, or since the war started:

Exports	\$3,779,774,633
Imports	2,099,493,839

Excess of exports .. \$1,680,280,794

BUSINESS TRENDS.

NOVEMBER PIG IRON PRODUCTION HEAVY.

The difficulty of forcing pig iron production above the present rate appears in the statistics for November, according to the "Iron Age". At 3,037,308 tons for last month, the output was 101,244 tons a day, against 3,125,491 in October, or 100,822 tons a day. The steel company furnaces could not keep up the pace they made in the October strain for high records. Some of them may be expected to go out soon for relining, as the hard driving of many months is telling.

On December 1st the capacity of the 284 active blast furnaces was 163,033 tons a day, against 161,849 tons a day for 276 furnaces on November 1st, this last rate being based on the unusual outputs of October. Production is now at the rate of 38,000,000 tons a year, allowing 400,000 tons for charcoal pig iron.

The daily average production of coke and anthracite pig iron in the United States by months since January, 1912, is given as follows by the "Iron Age":

	1912.	1913.	1914	1915.
January	66,384	90,172	60,808	51,659
February ...	72,442	92,369	67,453	59,813
March	77,591	89,147	75,738	66,575
April	79,181	91,759	75,665	70,550
May	81,051	91,039	67,506	73,015
June	81,358	87,619	63,916	79,361
July	77,738	82,601	63,150	82,691
August	81,046	82,057	64,363	89,666
September ..	82,128	83,531	62,753	95,085
October	86,722	82,133	57,316	100,822
November ..	87,695	74,453	50,611	101,244
December ...	89,766	63,987	48,896	...

COMMERCIAL FAILURES.

Total insolvencies as reported to Bradstreet's Journal for the month of November were 1,398, an increase of 3.6% over October, but a decrease of 10% from November a year ago. November is the third successive month to report a falling off in number of failures from the corresponding month of last year, testifying to the maintenance of the improvement in failure returns, which first became manifest in the late summer. Liabilities aggregate \$19,698,805, an increase of 18% over October, but a decrease of 12% from November a year

ago. Compared with preceding years, of course, the comparisons are not so favorable as they are with like months of 1914 when the economic disturbance caused by the outbreak of the war began to show its effects.

EXCEPTIONALLY HEAVY BANK CLEARINGS IN NOVEMBER.

Bank clearings for November were of extraordinary heavy proportions, the total, \$19,249,621,805, being the second largest ever recorded, and only 4% under that of October, when clearings reached peak point. Indeed, the showing is remarkable, especially as November was marked by two widely observed legal holidays. In fact, the total for the country outside of New York, \$7,420,202,070, represents a new high record, the exhibit for October having been surpassed to the extent of 1.4%. Incidentally, the grand total for the 11 months ended November 30th, \$165,936,226,917, exceeds that of 1912, heretofore the banner period.

The grand total of \$19,249,621,805 for November of this year exceeds that of the corresponding month last year by 70.5%, while it reflects a gain of 40% over November, 1913, and shows an increase of 26.4% over the like month in 1912, heretofore the best November in history, at least as regards bank clearings.

RECORD COMMODITY PRICES.

Bradstreet's latest index number of commodity prices is higher than ever. It shows an increase of 4% over that of October 1st, and it displays a rise of 15% over that of November 1, 1914, when prices receded to a relatively low point on the rebound from the flurry caused by the first efforts of the war. The index number as of November last registers \$100,594, the highest yet recorded. As compared with November two and three years back the current number discloses advances of 12.8% and 65% respectively.

Foreign demand and improved domestic consumption have combined to lift the general level of commodity prices to a point never heretofore approached. Priceless employment, with a minimum of complaint as to "high cost of living" so notable in other periods of advancing quotations have helped to boost quotations

The Importance of Maintaining Our Export Trade After the War.

Warren F. Hickernell, Editor, The Brookmire Economic Service.

During the first eight months of 1915, exports of Iron and Steel were \$212,700,000, as compared with only \$140,200,000 in 1914; Automobile exports amounted to \$74,800,000, against only \$21,500,000 last year; Leather and Shoes amounted to \$109,500,000, against \$35,500,000; Brass, \$26,600,000, against \$4,600,000; while exports of Explosives amounted to \$65,900,000, against only \$4,100,000 during the first eight months of 1914.

Present Benefits from the Export Trade.

Not only in these lines but in foodstuffs and supplies of nearly all kinds our export trade has increased rapidly during the present year—amounting to the huge sum of \$2,867,000,000 for the first ten months of the year. The export trade in foodstuffs a year ago rescued us from financial paralysis; the marked gain in shipments of all kinds of war supplies swelled the early improvement into a manufacturing boom; the abundant profits arising from the export trade provided the banks with the money which they are now lending to domestic corporations for internal development.

Future Problem of the Trade Balance.

The balance of trade in our favor in 1915 has increased tremendously in spite of the fact that imports are nearly as large as the average for the past two years. This credit balance on our foreign trade seldom runs above \$600,000,000 a year, and last year was only half that amount. **This year, however, it will run about \$1,800,000,000, or three times as large as we can ordinarily hope for after the war.**

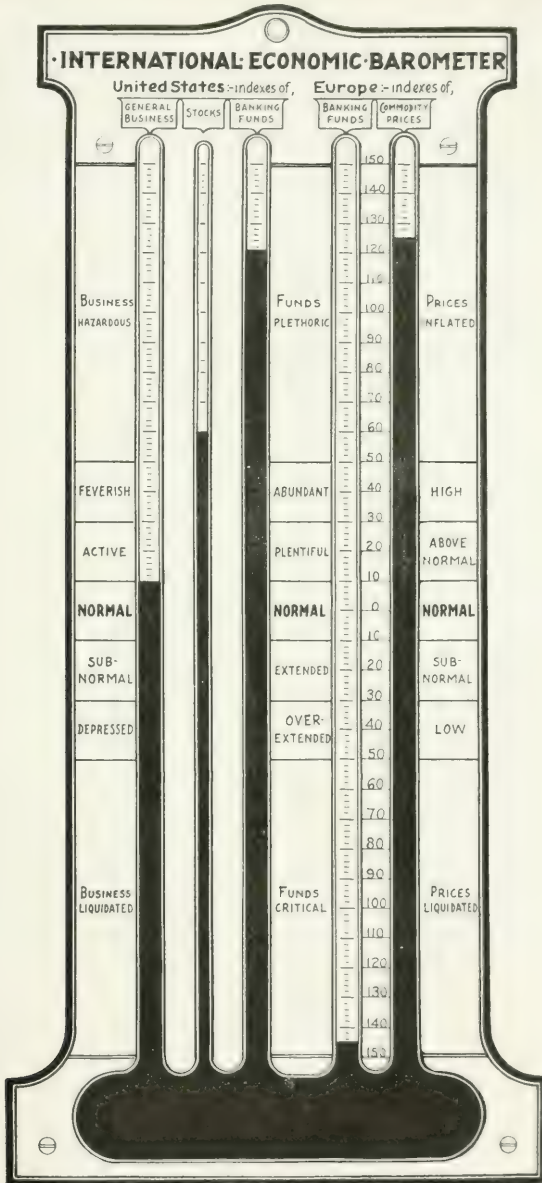
What does this mean? At first glance, it would look as if this country was making a lot of money—and, as a matter of fact, it is. The accompanying diagram is designed to give an index of the extent to which we have prospered. In Column 1 (the first tube on the left) we find that the Index of General Business in the United States is now entering the "active" area, whereas it was down in the "liquidated" area only a few months ago. We find that the Stock Market Index (Column 2) is

getting as high as it was during the booms of 1905 and 1909. To finance this expansion, a great deal of money has been borrowed from the banks, and yet the Index of Banking Funds in this country (Column 3) has kept on rising and rising all the time that speculative and business activity has been increasing. **This is something almost unheard of.**

Ordinarily, banking funds decrease the minute the railroads and factories begin to borrow money for purposes of expansion. But this year the piling up of banking funds represents the abnormal profits derived from our export trade. In time of peace such an occurrence is impossible, as foreign countries generally curtail purchases of goods in this country and increase their sales as soon as they become financially weak; whereas in 1915, although the supply of banking funds in Europe (Column 4) has been critically reduced for some time, the foreign governments at war continue to take funds from European banks and ship them to this country because they simply must have war supplies.

Post-Bellum Readjustment Inevitable.

Military success is more important than financial equilibrium in 1915, but the present condition of unstable equilibrium is bound to entail a future reckoning. The foreign banks are getting pretty short of funds and after the war will have two big jobs on their hands. In the first place, the loans on war commodities will have to be liquidated. The funds in Column 5 in the diagram indicate that merchandise values in Europe are very much inflated. The banks must improve Column 4 at the expense of Column 5. In the second place, European countries will participate in a mad scramble to get ahead in foreign commerce, and in order to make permanent gains in this direction it is necessary to have plenty of money on hand to loan to foreign commercial customers, and from commercial necessity it will be a patriotic duty for European bankers to get back some of the money piled up in the New York banks. European countries will accomplish this by



selling America more goods and buying less; and it is certain that our annual foreign balance will be lowered by about \$1,000,000,000 immediately after the war.

Significance of the Export Trade.

Obviously, if the war were to end at an early date, the export trade would soon decline and our bankers would find their present golden paradise fast disappearing. Gold would be shipped back to Europe and our business men and speculators would find the banks restricting loans with a stiff upper lip. That is why it is so important to make a fight to hold our export trade after the war is over, for the larger our export trade, the greater will be our financial strength, and the less likely, or less severe, an industrial setback.

But, since the increase in exports mainly consists of war supplies, the question arises

—How can we expect to maintain our exports of war supplies when there is no war? The answer is—We cannot. But we must remember that, whereas during the past fifty years we have been handicapped by a banking system which prevented the United States from becoming an important international financial center, now, these restrictions are everlastingly removed by the Federal Reserve Act and our bankers and manufacturers are in a position to do something they have never done before—and they are doing it.

Role of the American International Corporation.

Our shrewd financiers have already organized the American International Corporation. This \$50,000,000 concern has the power to act as a jobber for manufacturers who do not know where to find the retail demand in other countries; it can develop or construct mines, railroads and factories in South America or Asia; it can buy the controlling interest in foreign enterprises already established and sell the securities

of such established concerns to American investors. By virtue of its existence and activities, moreover, the markets already acquired by our exporters in past years will be made more secure and broadened.

It will be interesting to watch the progress which this new International Corporation makes and it will be satisfying if it absorbs a good deal of the surplus investment capital now piled up in New York, for, manifestly, the New York banks have too much money for the country's good health. On an average, banking deposits have not increased more than four or five per cent a year during the last ten or fifteen years, but during the past twelve months they have increased about sixty-six per cent. The country cannot absorb all this money without unhealthy inflation. If we sow the wind we shall reap the whirlwind in the shape of liquidation and general business reaction after the war if it is necessary to send gold back to Europe in large amounts.

Ultimate Result of Foreign Investments.

If we use about \$500,000,000 in developing and increasing the foreign markets for our exports during the coming year, however, we shall prevent over-inflation in the United States and at the same time take care of the financial needs of different countries throughout the world to such an extent that these countries will not need to go to Europe for money after the war is over. Or, in other words by using the money in our banks now to help the neutral foreign countries throughout the world, we shall be doing the work which the European banks would otherwise have to do after the war is over and in the doing of which they would call upon the New York banks for large amounts of money. By thus doing their work for them in advance, we could largely remove the occasion for sending money to European banks after the war is over.

Steel Plants.

I. The Gary Plant.

Here starts a series of articles briefly descriptive of steel plants. We shall claim as much latitude in the selection of subjects as in the "Topical Talks on Iron", No. XXXII of which appears in this issue. There are so many steel plants that the series may never be finished, but we shall endeavor to present an interesting one each month, much along the line of a "who's who". No technical descriptions are of course contemplated, merely a brief but a more or less comprehensive outline.

Naturally enough one starts with the Gary steel plant, owned by the Indiana Steel Company and operated by the Illinois Steel Company, both subsidiaries of the United States Steel Corporation. Gary can hardly be called a "typical" steel plant, but it can perhaps be called an ideal one, if the possession of capital practically unlimited for such an investment, the command of the skill and experience of many of the best men in the steel industry and the circumstance of a complete plant being built at one operation could combine to produce an ideal result.

The decision to build the Gary plant was reached in 1905, and the Indiana Steel Company was formed in January, 1906, expenditures in 1906, including that for about 7,500 acres of land, amounting to nearly \$5,000,000. The site was afterwards increased to about 9,000 acres. The first pig iron was produced December 21, 1908. The first rail was rolled January 24, 1909, of steel brought from another plant. The first steel was made February 2, 1909.

The plant is located east of Chicago and but a few miles beyond the Indiana state line. The complete layout contemplates the use of land yet to be made by filling in Lake Michigan, the War Department having established a limit of 25 feet depth of water that might be filled. Over 40 miles of trunk line was built, for moving the Baltimore & Ohio and the Chicago, Indiana & Southern, off the mill site. The plant lies north of the railroads, the city of Gary south.

Sixteen blast furnaces comprise the complete layout, numbered from south to north, so that the last group of four will be chiefly on made ground. The eight West furnaces

built at the outset are Nos. 5 to 12. Two additional, to fall in the first group, were authorized in November, 1915.

To match 16 blast furnaces six open-hearth departments were laid out, each to comprise two halves of seven furnaces each, making 84 contemplated altogether, the open-hearth plants being numbered 1 to 6, south to north. The original construction was of Nos. 1, 3 and 4, making 42 open-hearth furnaces, and with the construction of two additional blast furnaces a portion of No. 2 open-hearth will be built, but instead of the full No. 2 department being added according to the original plans duplexing equipment will be installed, Bessemer vessels serving some of the open-hearth furnaces and thus increasing their output. The open-hearth departments lie to the west of the blast furnaces, the individual departments lying southwest and northeast, rather than perpendicular to the line of blast furnaces. East of the blast furnaces are the ore storage yards and vessel slip, extending north and south, the slip being protected by a breakwater extending 3,200 feet into the lake. West of the open-hearth departments lie the various finishing mills and subsidiary departments. First there is a row, passing from south to north comprising machine shops and other incidentals, then the rail mill and then plate mills. West of this row is another row, comprising merchant mills and sheet mills together with the tin plate department authorized recently.

The original conception of the Gary plant was largely of a rail mill, but as matters develop plans for diversifying the product were speeded up and the output now includes a large tonnage of plates and merchant bars as well as of blue annealed, black and galvanized sheets, while a tin plate department is being built. Axes are also made.

The output of the Gary plant in 1915, with two open-hearth units 128 furnaces completed, the third unit being put in operation in February, 1917, was as follows:

Gross tons	
Pig iron	707,275
Ingot	1,066,745
Rails	281,080

Other rolled steel 469,360

The first by-product coke was made at Gary April 12, 1911, the full installation of eight batteries of 70 ovens each being completed in 1912.

The American Bridge Company's plant at

Gary was completed and put in operation in 1911, as was the American Sheet & Tin Plate Company's plant, comprising two plate mills, four jobbing mills and 16 sheet mills.

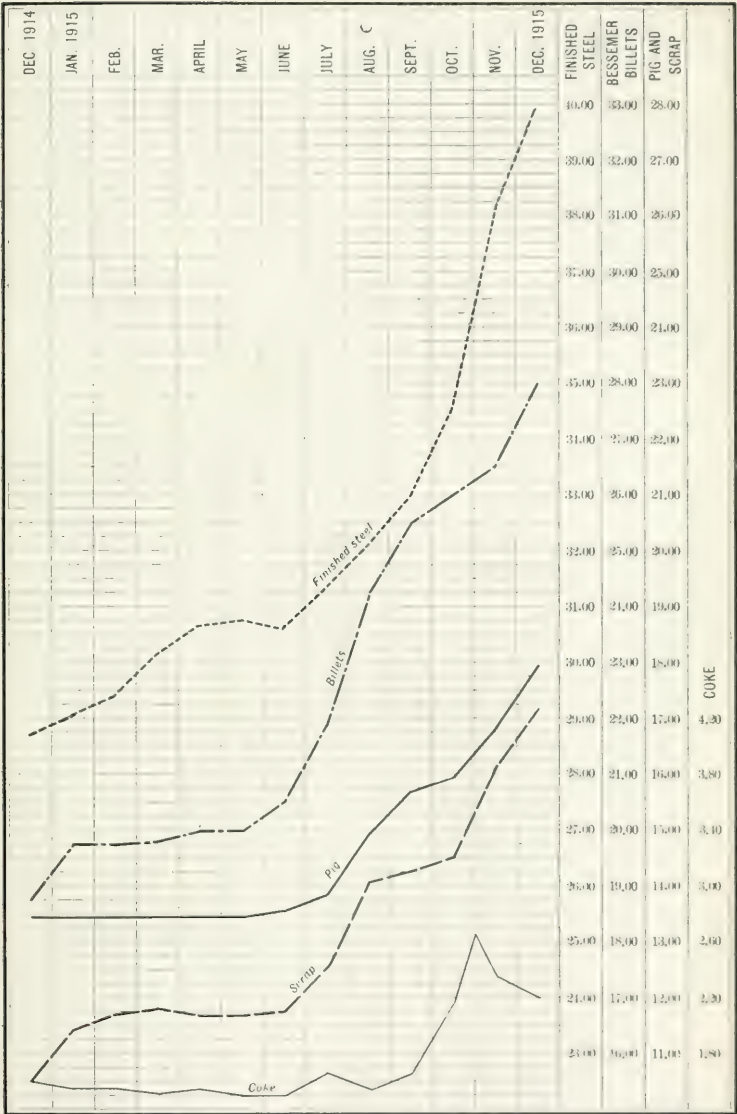
A Price Movement Developed.

(With Diagram)

Two short months ago the **Steel and Metal Digest** presented a two-page diagram entitled "Three Iron and Steel Price Movements compared". The idea of publishing such a diagram in the October number was conceived early in September, the thought being to illustrate in simple manner the fact that the price movement then in progress in the iron and steel markets bore much resemblance, as far as it had progressed, to the two preceding movements, in 1909 and 1912 respectively. One object of the presentation as then contemplated was to prove that there really was a major price movement in progress. Strange as it may seem at this late date, the full significance of the developments up to the beginning of September were not universally recognized, and it was desirable to present a diagram defending the movement to the extent of showing that as far as it had progressed it resembled the two previous movements. Some other interesting points were to be brought out, the most important of which was that coke did not advance in this movement as it had in the two preceding, the failure being due to the rapid increase in coke making capacity by reason of the building of by-product coke ovens by so many consuming interests.

The diagram in the October issue was presented as late as a diagram of the movement could be presented, to show a similarity between this movement and its two immediate predecessors. The lapse of two months carries the price lines in finished steel, billets, pig iron and scrap so sharply upwards that the resemblance disappears. The movement has already overtopped its predecessors. On the opposite page is given a reproduction of the "present movement" of the diagram of two months ago, with the lines extended. Finished steel runs above the top levels reached in the 1909 and 1912 movements, and all the lines except that for coke are trending very sharply upward. Coke continues to hug the horizontal line.

In order to make the showing of the diagram bring out clearly the very latest developments, the prices for the end of November are plotted, as well as the averages for November. With this exception the graphs merely connect points plotted in the centers of the month spaces to correspond with monthly averages, but in the case of the November space the graph runs to the end of the space, to the plotting of the November 30th price.



COKE

Prompt Connellsville furnace coke per net ton atovens ————— Basic pig iron delivered Pittsburgh —————
Heavy melting steel scrap delivered Pittsburgh ————— Bessemer steel billets Pittsburgh —————
Composite finished steel per net ton —————

New Iron and Steel Works Construction.

A brief summary of some of the new construction in the iron and steel industry is given below, necessarily incomplete, but perhaps not without interest.

As to blast furnaces, the Republic Iron & Steel Company is about to build another Haselton stack, to make five in the group. Besides the Haselton stacks it has Hannah at Youngstown, Atlantic at New Castle and Hall at Sharon, besides the three Pioneer furnaces in Alabama. An old Haselton stack may be abandoned later. The Steel Corporation has lately authorized the construction of two more blast furnaces at Gary, together with some additional open-hearth furnaces and a duplexing plant. The United Furnace Company's merchant stack at Canton, O., was put under way several months ago. Corigan, McKinney & Company's two additional stacks at Cleveland are to go in early in the new year. The Pennsylvania Steel Company recently completed its new No. 3 Steelton. The Steel Corporation's plant at Duluth is being put in operation this month, with two blast furnaces. Thus there are seven furnaces at least to be brought in within a twelvemonth or less, with fully 1,000,000 tons annual capacity. That, however, represents an addition of only 2.7% to the rate at which the country has lately been making pig iron. The old practice of doubling pig iron production every ten years meant an annual increase of 7.2%, which is nearly three times 2.7%.

As to open-hearth capacity, there is the Corigan, McKinney & Company plant at Cleveland, for early in the new year, and various items of additions to existing independent plants, all of which may be estimated quite roughly as representing nearly a million tons of ingots a year, to be added within perhaps six months.

The Steel Corporation's additions to open-hearth capacity are considerably more important, as there is the Minnesota Steel Company to make a start this month, with ten open-hearth furnaces, and additional open-hearth furnaces are to be built at Gary, at the Ohio works in Youngstown,

and at one or more of the Pittsburgh works. Of particular interest is the duplexing at the South Chicago works and at Gary, the erection of converters requiring relatively little time, perhaps three months, and serving to increase the output of existing open-hearth furnaces, as the time of making the open hearth heat is shortened. Together with the new open-hearth furnaces the Corporation's increase in steel ingot capacity, to be accomplished doubtless by July 1, 1916, may be taken at about 1,500,000 tons.

Independents and Corporation together, therefore, promise to add by next July nearly if not quite 2,500,000 tons annually to the steel ingot production of the present, and as we estimate this at about 40,000,000 tons the addition may amount to 6%.

The greater increase in steel making than in pig iron making capacity indicated in the present construction plans is in keeping with the general alignment of affairs as it has been disclosed by the constantly increasing demand of the past few months. Steel became scarce before pig iron, if indeed pig iron has thus far become scarce.

The steel making construction is greater than the blast furnace construction, and as pig iron has been showing some signs lately of growing scarce, and as in a long production campaign many furnaces are likely to be forced out for relining a lack of balance between pig iron and steel making capacity may be developed.

Relatively few additions to rolling capacity are being made. There has been very little distinct shortage in rolling capacity, except in the case of bars and rods. Rolling mills are flexible and in the average works do not usually have difficulty in taking care of the steel that can be made. When steel becomes scarce and prices obtainable for billets or finished product justified paying freight on ingots and heating them the offerings of ingots were small. One of the largest new construction jobs on hand in the finished steel end is the building of a pipe plant by the Jones & Laughlin Steel Company at Aliquippa.

No additions to blast furnace or steel equipment are being made at that plant, but by reason of the plant being provided with

Bessemer converters for duplexing it is quite flexible as to steel output, given the necessary pig iron.

The Season Price on Tin Plate.

Thursday, November 11, formal announcement was made of the tin plate price for the season of 1916, \$3.60 for 100-lb. cokes, f. o. b. mill, Pittsburgh district. Pig tin was quoted at 39.00c. on that date and a fair average of the sheet bar quotations was \$26.50, but both quotations were regarded as largely nominal. The 1915 season price was announced December 3, 1914, although most of the business had already been put under contract. The price was \$3.20, pig tin being 33.50c. on the announcement date, while sheet bars were quoted at \$19.50. The usual computation would be that pig tin advanced $5\frac{1}{2}$ cents per pound, equal to 11 cents per box of tin plate, while sheet bars advanced \$7 per ton, equal to about 35 cents per box, making these two raw materials advance 46 cents per box while the tin plate price advanced 40 cents.

As a matter of fact, however, the tin mills were beset with unusual difficulties, in considering tin plate contracts for 1916. Tin might advance unduly, and the supply might even be cut off. Steel had already become scarce and deliveries promised to be uncertain. Palm oil and sulphuric acid had both advanced, with supplies uncertain.

The outcome of the situation has been that the contracting this season has been at very close to the so-called official price, extreme departures being 5 or 10 cents a box, whereas in 1915 contracts there were departures of 20 cents a box, if not occasionally more.

The tin plate contracts for 1916 carry a clause limiting the destination of the tin plate or containers made from it, in accordance with the British Pig Tin Regulations, intended to prevent tin plate made from British tin from falling into the hands of England's enemies, and a clause passing on to the tin plate buyer the added cost in making tin plate that may occur from England placing an export duty on pig tin, this clause increasing the invoice price of the tin plate by two cents for every one cent per pound of pig tin that such duty may involve.

We append our regular table of tin plate price changes, from our annual **Metal Statistics**, adding the 1916 season price.

Tin Plate Price Changes.

Changes in prices per box 14x20 prime Bessemer, 100 lbs., f. o. b. mill, Pittsburgh district, with prices of pig tin, New York and sheet bars, Pittsburgh, same date.

Tin Plates. Tin. Sheet Bars.

	Tin Plates.	Tin.	Sheet Bars.
Jan. 6, 1899	3.00	20.75	17.50
Jan. 26, 1899	3.25	24.50	18.50
Feb. 17, 1899	3.50	23.75	22.00
Mar. 8, 1899	3.87½	23.70	25.00
July 14, 1899	4.37½	29.12½	33.50
Aug. 6, 1899	4.65	31.25	36.00
Sept. 24, 1900	4.00	28.62½	22.00
Nov. 3, 1902	3.60*	26.75	31.75
Mar. 3, 1903	3.80*	30.80	31.50
Nov. 16, 1903	3.60*	25.40	24.00
Jan. 25, 1904	3.45*	28.20	24.00
July 28, 1904	3.30*	27.10	24.00
Nov. 18, 1904	3.45*	29.15	22.50
Dec. 22, 1904	3.55*	29.25	23.00
Oct. 3, 1905	3.35*	32.60	26.00
Oct. 20, 1905	3.45*	32.60	26.00
Nov. 20, 1905	3.40*	33.55	26.00
Jan. 8, 1906	3.50*	36.25	26.00
April 10, 1906	3.60*	38.75	28.00
May 19, 1906	3.75*	44.75	28.00
Oct. 25, 1906	3.90*	43.25	30.00
Jan. 6, 1908	3.70*	27.35	29.00
Mar. 10, 1909	3.40	28.70	25.00
Sept. 28, 1909	3.50	30.85	27.50
Nov. 12, 1909	3.60	30.50	28.00
Feb. 3, 1911	3.70	41.40	24.00
Aug. 12, 1911	3.60	43.00	22.00
Oct. 16, 1911	3.40	41.70	22.00
July 9, 1912	3.50	44.40	22.00
Sept. 4, 1912	3.60	47.20	23.75
Oct. 2, 1913	3.50	41.20	25.00
Nov. 3, 1913	3.40	39.90	21.50
Dec. 3, 1914	3.20	33.50	20.00
Nov. 11, 1915	3.60	39.00	26.50

* Subject to 5-cent rebate.

Cash discount allowed from 1 to 2 per cent.

In December 1915, early

Steel Corporation Earnings.

The average observer does not feel in a mood to make any predictions as to what the Steel Corporation may earn in the current quarter, or in whatever quarter in the future it reaches a maximum. Everyone, so far as we know, found the second quarter earnings above his expectations and the third quarter below and we have encountered no entirely satisfactory explanation of how these divergences came about. However, as the divergences were in opposite directions one may be disposed to hope that a comparison of the figures for both quarters may furnish some sort of a basis for prognostications. Using our estimates, made from month to month, of the tonnage of corporation shipments, the earnings reported appear the following per ton:

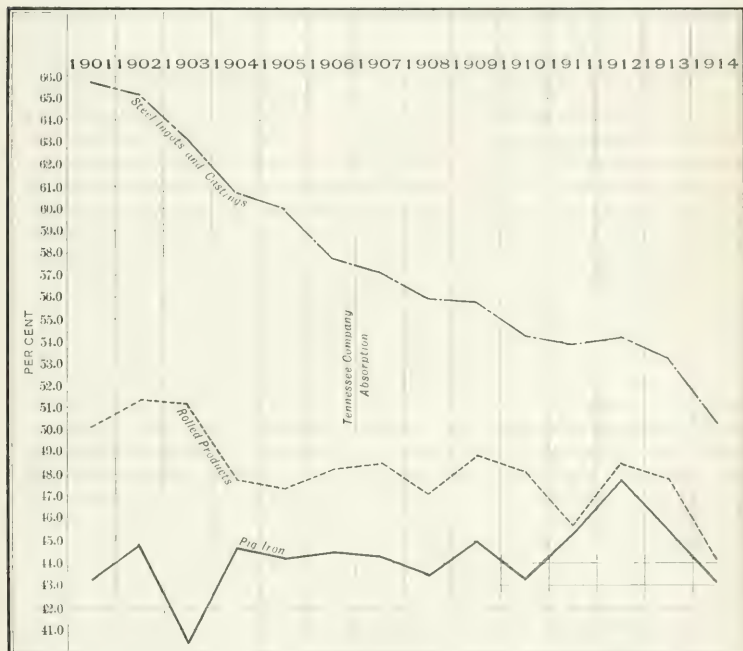
January	8.25
February	5.62
March	8.40
April	8.40
May	10.00
June	11.16
July	11.88
August	11.60
September	11.53

The increase in earnings per ton up to April or May should be ascribed chiefly to larger operations, reducing the operating cost, rather than to increases in realized prices. The average invoice price of shipments in May can hardly have been \$2 a ton above that of January, but the increase in earnings is about \$6.25. Later increases in earnings are to be ascribed to higher realized prices and then there seems to come a fresh factor, that with full operations, as compared with nearly full operations, the production cost advanced, for the least in units were being brought into the

average. There can hardly be any other explanation for the successive, though slight, decreases in earnings per ton in August and September.

Probably it required September to finish up deliveries on the low priced contracts taken for specifications during the first half, and fourth quarter shipments may be taken as invoiced at an average of \$2 a ton higher. Shipments would be at about the same daily rate, for September was a very good month for outputs. October has been slightly better, no doubt, but November and December may not be altogether as good. The Columbus works contributes tonnage this quarter, but hardly contributes any profits to speak of, so it can be counted out of this reckoning. Carrying out the proportions we would have \$48,600,000 for the current quarter, and the odd \$600,000 could be knocked off for decreased profits in ore transportation. This \$48,000,000 we do not give as a forecast but as a computation. In some quarters it may be interesting to speculate what the Steel Corporation could earn realizing present market prices on all its shipments. Our composite averaged 1.51c last March and it is improbable that September shipments brought much above the level thus indicated. Our composite is now almost \$10 a ton higher, but allowing only \$8 increase, partly because standard rails have not advanced, one might possibly expect earnings \$8 greater than those of September, or say \$20 a ton. With the aid of the Duluth plant and other additions to capacity the Corporation ought to be able to produce at least 15,000,000 tons of merchant products in a year, which according to such a computation would produce earnings of \$300,000,000. It is rather an interesting speculation.

Steel Corporation—Independents.



STEEL CORPORATION'S PROPORTIONATE TONNAGE.

The diagram above plots the percentage which the production of the United States Steel Corporation has constituted of the total production of the country, in pig iron, steel ingots and castings and finished rolled products.

The proportion of pig iron is low, relative to the other products, because the production of the country includes pig iron for foundry use, an industry quite distinct and apart from the steel making industry of the corporation and the independent steel interests.

The proportion of rolled products is lower than the proportion of steel ingots and castings chiefly because the country's total includes rolled iron, of which the corporation makes practically none.

The gap between the corporation's percentage of steel ingots and castings and its

percentage of rolled products is due, in great part to the fact that country's total rolled products includes rolled iron, of which the corporation makes practically none, and in lesser part to the fact that the corporation sells a quantity of unfinished steel, mostly billets and sheet bars, to be rolled by independents, the steel thus involved figuring in the Steel Corporation's ingot production, but in the rolled production of the independents. The lessening margin between the corporation's percentages of raw steel and of rolled product is due chiefly to the fact that as the total percentage increases the margin naturally decreases, as follows:

The fact that the corporation's proportions of raw steel and of rolled products steadily decrease, while the proportion of pig iron shows if anything a slight tendency to increase, is due in minor part to the fact that in its early years the corporation was a buyer of merchant pig iron while lately

it has not bought to any extent, and in major part to the fact that the country's production of foundry grades of pig iron, in which the corporation does not participate, has not increased as rapidly as has the production of steel making pig iron.

A significant feature of the showing is

that in years of light demand, such as 1908, 1911 and 1914, the corporation's proportion of total production was particularly low.

The diagram is of course based upon data gathered by the Bureau of Statistics of the American Iron and Steel Institute.

Topical Talks On Iron.

XXXII. Rolling Old Material.

Quite a large tonnage of old iron and steel is rerolled to a new finish form. There are two classes of operations, those in which there is a welding of two or more pieces side by side and those in which a single piece is rolled to a single piece, necessarily of smaller cross section.

The iron mills roll a great deal of old wrought iron, and some steel, by various processes. A common operation is to pile flat pieces of more or less uniform size, these readily welding after being heated and given a few passes through the rolls. A more complicated operation is that of making a "box pile" where plates are used for bottom, sides and top, the inside being filled more or less indiscriminately with small material. Another form of piling is merely to heap the material on a board and insert the whole in the furnace, the board promptly burning away. In that operation the sticking operation is of course completed in the furnace rather than in the rolls.

The quantity of material that is rerolled piece by piece is steadily increasing, and that despite the fact that the open-hearth steel furnace is a strong bidder for steel scrap, melting scrap being indeed an efficient and economical means of utilizing it. The rerolling of old steel is encouraged by the greater density of distribution, whereas it is easier than formerly to accumulate enough material of a size to make the rolling operation worth while. Rerolling is also greatly encouraged by the fact that old steel rails are better year by year. With heavier loads and greater speeds, and with better steel in the rail there are more rails worn out smoothly in service and fewer mashed practically to pieces. Not so many years ago the proportion of the total old rails coming into the market that were fit

for rerolling was very small, but now the proportion is large.

Old rails or rerolling quality are readily rerolled into lighter sections, and as old rails nowadays are of heavier average section than formerly it is possible to produce fairly heavy sections in the rail rerolling mill.

The earliest important product of the mill rolling old rails, apart from light section rails, was bedstead angles, or which product the material is particularly well suited, being stiffer than soft steel, while the hardness, making the steel more difficult to punch, is not objectionable in the case of bedstead angles. In recent years the heavy demand for concrete reinforcement has given the rerolling mills another and a very important product. In making reinforcing bars from new steel there is much demand for steel of relatively high carbon, on which an extra is charged, while the rail steel has the carbon without extra cost, and therefore the rerolling mills have built up a very large trade in hard steel concrete reinforcing bars.

It may not be universally known that quite a number of the railroads operate rolling mills of their own, but such is the fact. The railroads are the greatest scrap producers, and their scrap output comprises a very wide range of material. A considerable percentage of it is in heavy bars such as could readily be rerolled into somewhat lighter sections, but it would be impossible to obtain an extra price from scrap dealers and when sold the material would have to go as No. 1 railroad wrought scrap if iron or heavy melting steel if steel. The railroads are likewise consumers of a great variety of bar sections, and hence at shops where large quantities of scrap accumulate for sorting and sale small rerolling mills

have been installed in a number of mills. The Pennsylvania has several such, the most important being at the shops at Altoona, Pa. The Baltimore & Ohio has a rolling mill at Painesville, O., and the Buffalo, Rochester & Pittsburgh one at DuBois, Pa. All these mills are electrically driven, and thus quite modern in their way. They cost practically nothing except when in use.

IMMIGRATION STATISTICS.

Years mentioned refer to fiscal years ended June 30th. Aliens admitted, both immigrant and non-immigrant, and aliens departed, both emigrant and non-emigrant, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1912	1,017,155	615,292	+ 401,863
1913	1,427,227	611,924	+ 815,303
1914	1,403,081	633,805	+ 769,276
July, 1914	72,015	54,885	+ 17,130
	Admitted.	Departure.	Change.
August	51,231	54,112	— 2,881
September	44,624	34,757	+ 9,867

October	45,241	39,410	+ 5,831
November	35,325	40,748	— 5,423
December	27,458	42,525	— 15,067
January, 1915	20,684	31,556	— 10,872
February	18,704	14,188	+ 4,516
March	26,335	15,167	+ 11,168
April	31,765	17,670	+ 14,095
May	32,795	17,624	+ 15,171
June	28,499	21,532	+ 6,967
Year 1915	1,412,444	684,174	+ 728,270
July	27,097	16,015	+ 11,082
August	27,413	41,737	— 14,324
September	31,006	45,091	— 14,085

United States citizens arrived and departed, with change thereby effected in United States population:

	Admitted.	Departed.	Change.
1913	286,604	347,702	— 61,098
1914	286,586	368,797	— 82,211
1915	239,579	172,412	+ 67,167
Net change in population caused by the movement of both aliens and citizens: 1913, +754,205; 1914, +687,065; 1915, +117,237; July, 1915, +14,994; August, 1915, —15,128; September, 1915, —1,099.			

RAILROAD EARNINGS.

Railroad earnings per mile of road, of roads having annual operating revenues above \$1,000,000, this being about 229,000 miles or about 90% of the total steam railway mileage; compiled by the Bureau of Railway Economics from duplicates of reports furnished the Interstate Commerce Commission.

	1913-14			1914-15			1915-16		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	\$1,183	\$837	\$346	\$1,127	\$786	\$341	\$1,130	\$750	\$380
August	1,244	856	388	1,174	788	386	1,199	765	434
September	1,257	854	403	1,182	781	401			
October	1,314	891	423	1,169	786	383			
November	1,180	884	297	1,023	732	292			
December	1,116	821	296	990	728	262			
January	1,021	795	226	936	716	220			
February	914	746	168	897	678	219			
March	1,091	801	290	1,012	720	292			
April	1,068	782	286	1,010	722	288			
May	1,041	800	241	1,040	732	308			
June	1,097	789	308	1,090	730	360			

The Iron and Steel Situation.

Position of the Mills.

Definite orders on the books of the steel mills, together with such contract obligations as are certain, with present conditions preserved, to be specified, amount on an average to about six months of full production. The business of course is not evenly distributed, the mills being filled already with specifications for the larger sizes of steel bars to July or later, while there is, at the other extreme, very little shape business on books. As the large mills making bars, plates and shapes allot their steel to the different finishing departments much in accordance with the pressure for material, delivery promises on plates and shapes run far into the future.

Prices are very strong all along the line and are showing an almost constant advancing tendency. There is no disposition on the part of the mills to hold the market in check, unless putting up prices may be regarded as a means of doing so. Occasionally one hears talk of the desirability of holding prices at a "safe" level but the general view is that in these altogether unprecedented conditions no one could determine where a safe level lays. The question of safety would depend upon conditions, and the conditions are changing.

Production of pig iron is at the rate of between 37,500,000 and 38,000,000 tons a year. Prior to this movement the best rate attained was 34,000,000 tons a year, in the spring of 1913. The merchant furnaces are making a trifle less pig iron than at that time, so that the steel works furnaces account for the deficiency as well as for all the gain.

Steel ingots are being produced at the rate of about 38,000,000 tons a year, while the production of steel castings is probably at a rate somewhat under 1,000,000 tons a year.

Rolled steel is being produced at the rate of about 27,500,000 tons a year, and rolled iron at the rate of about 1,500,000 tons. Thus the production of rolled iron and steel and of steel castings is at about 30,000,000 tons a year, an altogether unprecedented record. No precise estimate can be made as to the production of iron castings, but it is quite obvious that the current rate is well below the best previous rate.

The November Movement in Steel.

Advances in regular steel prices in November, disregarding the premium prices paid for early delivery of some commodities, have been as follows, the advances being expressed in dollars per net ton:

Bars	\$4 to 1.70
Plates	\$4 to 1.70
Shapes	\$4 to 1.70
Steel pipe	\$2 to 78¢
Boiler tubes	\$2 to 68¢
Wire nails	\$3 to 2.00
Black sheets	\$8 to 2.50
Blue annealed	\$11 to 2.25
Galvanized	\$25 to 4.75

Including advance December 1st.

The season tin plate price was announced November 11th at \$3.60, or \$8 a ton advance over the season price for 1915, announced December 3, 1914. The market had declined to \$3.10 but by the beginning of November had stiffened to \$3.30, against orders with specifications for early delivery, so that the advance of tin plate during November may be taken at \$6.

November 1st our **composite finished steel** stood at 1.7975c. December 1st it stood at 1.9950c., recording an advance of \$3.95 per net ton, against \$2.15 in October. Nothing could more clearly illustrate the great fact in this price movement, that prices tend to rise more and more rapidly up to date, than the following record of advances in our **composite finished steel**, in dollars per net ton from the beginning of the year to date:

First half	\$2.20
Third quarter	3.00
October	2.15
November	3.95

The market for billets and sheet bars has not been clearly defined. Business has been chiefly between those who are regularly in the relation of seller and customer. Occasional buyers, or those who seek sources of supply other than their usual have found it difficult if not impossible to secure quotations. The mills mention prices which they seem to regard as the market, even though they would not sell at them, and these prices seem to be computed from the settlement prices made in private arrangements of various sorts with their regular customers. Such conventional

IRON AND STEEL.

prices advanced \$3 or \$4 a ton during November, and December 1st the market is regarded as quotable for comparative purposes at about \$29 for Bessemer billets and sheet bars and about \$30 for open-hearth, at maker's mill, Pittsburgh or Youngstown.

The November Pig Iron Movement.

Our review of pig iron a month ago started out by quoting a sentence from the review of one month earlier: "The pig iron market is almost at a standstill", and observed that such a condition no longer obtained. After a moderate advance during September, averaging 50 to 75 cents a ton, the first two or three weeks of October saw a steady but by no means active or advancing market. Then an improvement began, but a month ago there were few if any who foresaw how sharply prices were about to advance. Following is the record

of advances in the items that make up our composite pig iron, covering the period from November 1st to December 3rd, inclusive:

Bessemer, valley	\$2.50 to \$18.50
Basic, valley	1.50 to 17.00
Foundry, valley	2.00 to 17.00
Foundry, Philadelphia	2.00 to 18.25
Foundry, Buffalo furnace....	2.00 to 17.50
Foundry, Cleveland furnace.	2.00 to 17.00
Foundry, Chicago furnace	2.50 to 18.00
Foundry, Birmingham	1.00 to 13.50

These advances have effected a change in our composite from \$15.505 on October 30th to \$17.41 on December 3d, or \$1.905 in scarcely more than a month.

In most cases sharply advancing prices mean heavy demand, but the advance just recorded is not in that category. There was fairly heavy buying, it is true, but not the volume of buying that in the past has

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

		No. 2 fdy		Basic, No. 2 N fdy		Cleveland		Chi.	Birm-	mangan-	Base*	Price
1914—		Valley	Phila.	Phila.	Buffa.	land	org.	ingham.	ese,*	coke†		
Jan. ..	14.06	12.51	13.00	14.25	14.69	13.76	13.30	14.35	10.63	43.42	1.88	
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.55	14.46	10.52	38.33	1.90	
Mar. .	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92	
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90	
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83	
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80	
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75	
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡	1.74	
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70	
Oct. .	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65	
Nov. .	13.75	12.50	12.75	14.00	14.24	12.33	13.50	13.10	10.00	68.00	1.60	
Dec. .	13.75	12.50	12.75	13.50	14.25	13.13	13.30	13.40	9.67	68.00	1.60	
Year .	13.99	12.89	13.02	14.02	14.50	13.09	13.76	14.15	10.24	55.80	1.72	
1915—												
Jan. ..	13.75	12.50	12.75	13.50	14.45	13.25	13.25	13.45	9.50	68.00	1.55	
Feb. .	13.64	12.50	12.75	13.50	14.50	13.25	13.25	13.50	9.50	68.00	1.55	
Mar. .	13.60	12.50	12.75	13.50	14.35	12.74	13.25	13.50	9.42	78.00	1.53	
April .	13.60	12.50	12.75	13.40	14.05	12.69	13.25	13.50	9.25	78.00	1.55	
May ..	13.60	12.50	12.75	13.25	14.25	13.17	13.25	13.50	9.47	91.00	1.50	
June ..	13.75	12.57	12.70	13.42	14.25	13.08	13.25	13.50	9.50	100.00	1.50	
July ..	13.98	12.87	12.72	13.83	14.28	12.85	13.20	13.50	9.61	100.00	1.67	
Aug. .	15.12	13.98	13.71	14.83	14.91	13.87	14.08	13.88	10.77	100.00	1.54	
Sept. .	15.93	14.80	14.50	16.70	15.77	15.43	15.04	14.30	11.22	107.50	1.66	
Oct. .	16.00	15.00	14.58	17.25	16.25	15.75	15.27	15.08	11.71	105.00	2.28	
Nov. .	16.67	15.88	15.82	17.40	16.95	16.75	16.47	17.50	12.74	100.00	2.25	

* Contract price, f. b. Baltimore.

† Spot shipment; no contract market.

‡ Price paid at Cleveland, Ill.

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sent prices up at this rate. Rather the remarkable feature of the situation, considering the extent of the price advance, was the relative smallness of the turnover. As there is no suspicion of important collusion among the furnaces, and indeed such collusion would be practically a physical impossibility, as we are considering not one market but a group of entirely detached markets, the only conclusion to be reached is that a quietly but steadily increasing consumptive demand, with dwindling stocks, has brought the situation to a point at which a definite shortage is in prospect. Until now the supply of pig iron has increased by the blowing in of idle furnaces. It was a remarkable feature of the pig iron market during the first half of the year that prices did not advance, on the whole, although conditions steadily improved and consumption increased very materially, probably, in the case of merchant pig iron, by more than a third. The market was steadily held down by the blowing in of idle furnaces, some of them blowing in to

anticipate, but really thus forestalling, the advance they expected. Now the increase in demand has reached the point where there are very few fit furnaces still to be blown in. There are indeed a few fit furnaces that cannot blow in because they have no ore.

Ore a Factor.

Thus the price situation presents almost unlimited possibilities. Pig iron may be \$20, or \$25, within a few months. Nor will the new navigation season for Lake Superior ores necessarily afford relief. It is doubted whether the lake fleet can move in 1916 all the ore that the trade will call for. It has been reduced by small vessels going out to the ocean, perhaps all that were short enough to pass through the locks of the Welland canal, and by losses in storms, while only a few new vessels are to be added for the new season. Late in November the Steel Corporation made what in some quarters is regarded distinctly as a coup, chartering vessels to move nearly 10,000,000 tons of ore. Owners of the un-

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

(Averaged from daily quotations, f.o.b. Pittsburgh.)											Composite
					Wire	Cut		Sheets	Tin	Finished	
1914—	Shapes.	Plates, Bars.	Pipe.	Wire.	Nails.	Nails.		Black, Galv.	plate.	steel.	
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.49	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.32	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September ..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November ..	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769
December ..	1.05	1.05	1.05	81	1.31	1.51	1.55	1.83	2.80	3.20	1.4324
Year	1.16	1.14	1.15	80	1.37	1.57	1.57	1.89	2.87	3.35	1.5182
1915—											
January	1.10	1.10	1.10	81	1.34	1.54	1.58	1.80	2.80	3.10	1.4554
February ..	1.10	1.10	1.10	80½	1.38	1.58	1.55	1.80	3.09	3.10	1.4716
March	1.15	1.15	1.15	80	1.40	1.60	1.55	1.80	3.40	3.15	1.5098
April	1.20	1.20	1.20	80	1.37	1.57	1.55	1.80	3.40	3.20	1.5357
May	1.20	1.17	1.20	79	1.35	1.55	1.55	1.80	3.60	3.11	1.5381
June	1.20	1.15	1.20	79	1.35	1.55	1.55	1.76	4.80	3.10	1.5312
July	1.25	1.22	1.27	79	1.38	1.58	1.55	1.74	4.65	3.10	1.5692
August	1.30	1.26	1.30	79	1.43	1.61	1.55	1.85	4.40	3.10	1.6059
September ..	1.33	1.33	1.35	79	1.54	1.69	1.58	1.91	3.68	3.10	1.6506
October ...	1.44	1.42	1.43	79	1.63	1.78	1.65	2.03	3.57	3.15	1.7264
November ..	1.63	1.63	1.63	78	1.72	1.87	1.72	2.30	4.07	3.45	1.9089

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chartered boats then became indisposed to accept business, preferring apparently to take chances on wild cargoes. Some ore interests are reported to be negotiating to buy boats when they cannot charter them. Thus a tense situation has arisen. Lake Superior ore prices for the new season have not been announced, and there may be no announcement until after January 1st. The expectation is that there will be an advance of from 75 cents to \$1 a ton.

Of one material there is no scarcity or threatened scarcity—coke. There has been an ample supply to date, with a moderate advance in price, but nothing like such advances as have occurred in general iron and steel price movements in the past. As pig iron is now advancing largely because production cannot be materially increased, there is no possibility of such increased coke consumption as to deplete the supply. For this condition the great amount of by-

product coke oven construction is of course responsible.

The Future.

While the mills and furnaces are very well sold up for months there are no prospects of decreased consumptive demand, but rather indications of increased pressure in future. Railroads have not bought as many cars as was expected, some of them definitely refusing to buy on account of prices asked, and thus a short interest accumulates. The mills have largely withdrawn from the export market and a short interest is probably accumulating there also.

As prices show no tendency to stop advancing, and as mills already cannot make as good deliveries as desired, the definite prospect is that some consumption will be shut off or deferred, and thus the period of activity promises to be prolonged. While the war demand is heavy it is no longer the backbone of the iron and steel market.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1909:

Quarter.	1915.	1914.	1913.
1st	\$12,457,809	\$17,994,382	\$34,426,802
2nd	27,950,055	20,457,596	41,219,813
3rd	38,710,644	22,276,062	38,150,100
4th		10,935,635	23,084,330
Year		71,663,615	127,181,345
	1912.	1911.	1910.
1st	\$17,826,973	\$23,519,203	\$37,616,877
2nd	25,102,266	28,108,520	40,170,961
3rd	30,063,513	29,522,725	37,365,187
4th	35,181,922	23,155,018	25,901,730
Year	108,174,673	104,305,466	141,054,755

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,333	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	3,830,641
1915..	4,255,749	4,678,196	5,317,608	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages on bookings and shipments to total capacity, our own estimates, while last column is derived from official reports of "unfilled orders" while third percentage column is directly compared from this first column.

	Ship-ments	Book-ings.	Dif-ference	Dif-ference.
	%	%	%	Tons.
January 1914	55	83	+28	+331,572
February ..	67	105	+38	+412,764
March	72	40	-32	-372,615
April	67	35	-32	-376,757
May	62	37	-25	-278,908
June	63	66	+3	+34,697
July	64	75	+11	+125,732
August	67	72	+5	+54,742
September ..	62	44	-18	-425,664
October ...	55	28	-27	-326,570
November ..	45	12	-13	-156,505
December ..	38	82	+44	+512,051
January 1915	44	81	+37	+411,928
February ...	57	66	+9	+96,800
March	67	60	-7	-89,622
April	71	63	-8	-93,505
May	76	85	+9	+102,754
June	79	115	+36	+413,598
July	83	104	+21	+253,844
August	81	89	+8	+20,085
September ..	98	133	+35	+409,100
October	100	72	-28	-347,800

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. Nov. 30.
	High.	Low.	High.	Low.	High	Low.	
Bessemer, valley	17.25	14.25	14.25	13.75	18.00	13.60	18.00
Basic, valley	16.50	12.50	13.25	12.50	17.00	12.50	17.00
No. 2 foundry, valley	17.50	13.00	13.25	12.75	17.00	12.50	17.00
No. 2X fdy. Philadelphia. .	18.50	14.50	15.00	14.20	18.25	14.00	18.25
No. 2 foundry, Cleveland .	17.75	13.50	14.25	13.25	17.30	13.00	17.30
No. 2X foundry, Buffalo..	18.00	13.00	13.75	12.25	17.50	11.75	17.50
No. 2 foundry, Chicago ..	18.00	14.00	14.75	13.00	18.00	13.00	18.00
No. 2 South'n Birmingham	14.00	10.50	10.75	9.50	13.50	9.25	13.50

Scrap Iron and Steel.

Melting steel, Pittsburgh .	15.00	10.75	12.00	9.75	17.25	11.00	17.25
Heavy melt. steel, Chicago	13.25	9.00	11.00	8.00	15.25	8.75	15.25
No. 1 R. R. wrought, Pitts.	15.75	11.50	12.75	10.00	16.75	10.75	16.75
No. 1 cast, Pittsburgh	15.00	11.50	12.25	10.50	14.25	11.00	14.25
Heavy steel scrap, Phila...	14.75	9.75	11.25	9.00	15.25	9.50	15.25

Iron and Steel Products.

Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.35	1.35	1.20	1.60	1.20	1.60
Iron bars, Philadelphia	1.67½	1.22½	1.27½	1.12½	1.86	1.12½	1.86
Steel bars, Pittsburgh	1.40	1.20	1.20	1.05	1.70	1.10	1.70
Tank plates, Pittsburgh ..	1.50	1.20	1.20	1.05	1.70	1.10	1.70
Structural shapes, Pitts. .	1.50	1.20	1.25	1.05	1.70	1.10	1.70
Grooved steel skelp, Pitts..	1.45	1.15	1.20	1.12½	1.70	1.12½	1.70
Black sheets, Pittsburgh..	2.35	1.80	1.95	1.80	2.50	1.70	2.50
Galv. sheets, Pittsburgh ..	3.50	2.80	3.00	2.75	5.00	2.65	4.75
Tin plate, Pittsburgh	3.60	3.40	3.75	3.10	3.60	3.10	3.60
Cut nails Wheeling	1.70	1.60	1.60	1.55	1.85	1.55	1.85
Wire nails, Pittsburgh	1.80	1.50	1.60	1.50	2.00	1.50	2.00
Steel pipe, Pittsburgh	79½¢	80½¢	79½¢	81½¢	79½¢	81½¢	79½¢

Connellsville Coke at ovens.

Prompt furnace	4.25	1.75	2.00	1.60	2.75	1.50	2.15
Prompt foundry	4.50	2.40	2.50	2.00	3.00	2.00	3.00

Metals—New York.

Straits tin	51.00	36.75	65.00	28.50	57.00	32.00	39.75
Lake copper	17.75	14.50	15.50	11.30	20.62½	13.00	19.87½
Electrolytic copper	17.65	14.12½	14.87½	11.10	20.50	12.80	19.87½
Casting copper	17.45	13.87½	14.65	11.00	19.62½	12.70	19.37½
Sheet copper	22.00	19.75	20.25	16.50	25.00	18.75	25.00
Lead (Trust price)	4.75	4.00	4.15	3.50	7.00	3.70	5.25
Spelter	7.35	5.10	6.20	4.75	27.50	5.70	.....
Chinese & Jap. antimony. .	9.00	6.00	18.00	5.30	40.00	13.00	40.00
Aluminum, 98-99%	27.12½	18.50	21.50	17.37½	59.00	18.75	58.00
Silver	63¾	56½	59½	47½	56½	46½	56½

St. Louis.

Lead	4.72½	3.85	4.10	3.35	7.50	4.10	5.20
Spelter	7.17½	4.95	6.00	4.60	27.00	5.55	18.12½
Sheet zinc (f.o.b. smelter)	9.00	7.00	8.75	7.00	33.00	9.00	22.00

London.

	£	£	£	£	£	£	£
Standard tin, prompts	232	166½	188	132	190	148¼	168
Standard copper, prompts ..	77½	61¾	66¾	49	86¼	57½	79½
Lead	21½	15¾	24	17½	29	18½	29
Spelter	26¼	20¼	33	21¼	110	28½	104
Silver	29¾d	25½d	27¼d	22¾d	27¼d	22¾d	27¾d

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1913.		Range for 1914.		Range for 1915.		Closing. Nov. 30.
	High.	Low.	High.	Low.	High.	Low.	
Atchison, Top. & Santa Fe...	106 $\frac{3}{8}$	90 $\frac{1}{4}$	100 $\frac{3}{8}$	89	111 $\frac{1}{8}$	92	106 $\frac{3}{8}$
Atch. Top. & Santa Fe, pfd.	102 $\frac{1}{4}$	96	101 $\frac{1}{4}$	96	102 $\frac{1}{4}$	96	101 $\frac{1}{8}$
Baltimore & Ohio	106 $\frac{3}{8}$	90 $\frac{3}{8}$	95 $\frac{1}{8}$	67	95 $\frac{1}{8}$	67	94
Canadian Pacific	266 $\frac{3}{4}$	204	220 $\frac{1}{2}$	153	194	138	183 $\frac{1}{4}$
Chesapeake & Ohio	80	57 $\frac{1}{8}$	68	40	61 $\frac{1}{8}$	35	63 $\frac{1}{2}$
Chicago, Mil. & St. Paul	116 $\frac{1}{4}$	96 $\frac{1}{4}$	107 $\frac{1}{8}$	84 $\frac{1}{4}$	98	77	94 $\frac{1}{2}$
Eric R. R.	32 $\frac{1}{2}$	20 $\frac{1}{4}$	32	20	45	19	43 $\frac{7}{8}$
Great Northern, pfd.	132 $\frac{3}{8}$	115 $\frac{1}{8}$	134 $\frac{1}{4}$	111 $\frac{1}{8}$	128 $\frac{1}{8}$	112 $\frac{1}{8}$	126
Lehigh Valley	168 $\frac{3}{8}$	141 $\frac{1}{4}$	156 $\frac{1}{4}$	118	87 $\frac{1}{8}$	64 $\frac{1}{8}$	82
Louisville & Nashville	142 $\frac{1}{4}$	126 $\frac{1}{4}$	141 $\frac{1}{8}$	125	139	104	127 $\frac{1}{2}$
Missouri, Kansas & Texas	29 $\frac{1}{8}$	18 $\frac{1}{8}$	24	8 $\frac{1}{8}$	15 $\frac{1}{8}$	4	73 $\frac{3}{8}$
Missouri Pacific	43 $\frac{3}{8}$	21 $\frac{1}{8}$	30	7	18 $\frac{1}{8}$	14 $\frac{1}{8}$	61 $\frac{1}{2}$
New York Central	109 $\frac{3}{4}$	90 $\frac{3}{8}$	96 $\frac{3}{8}$	77	101 $\frac{1}{8}$	81	102 $\frac{3}{4}$
N. Y., N. H. & Hartford	129 $\frac{7}{8}$	65 $\frac{3}{8}$	78	49 $\frac{1}{8}$	89	43	76 $\frac{1}{2}$
Northern Pacific	122 $\frac{3}{8}$	101 $\frac{1}{4}$	118	97	117 $\frac{1}{8}$	99 $\frac{1}{8}$	116 $\frac{1}{8}$
Pennsylvania R. R.	123 $\frac{1}{4}$	106	115	102 $\frac{1}{8}$	61	51 $\frac{1}{4}$	60
Reading	171 $\frac{1}{4}$	151 $\frac{1}{8}$	172 $\frac{1}{4}$	137	85 $\frac{3}{8}$	69 $\frac{1}{8}$	82
Rock Island	24 $\frac{3}{8}$	11	16 $\frac{3}{8}$		18 $\frac{1}{8}$		7 $\frac{3}{8}$
Southern Pacific	110	83	99 $\frac{1}{2}$	81	103 $\frac{3}{8}$	81	101 $\frac{3}{4}$
Union Pacific	162 $\frac{1}{4}$	137 $\frac{1}{4}$	164 $\frac{1}{8}$	112	141 $\frac{1}{8}$	115 $\frac{1}{4}$	140 $\frac{1}{8}$
Industrials.							
Am. Beet Sugar	50 $\frac{1}{2}$	193 $\frac{1}{4}$	53	19	72	30	70 $\frac{1}{8}$
American Can	467 $\frac{3}{8}$	21	357 $\frac{1}{8}$	19 $\frac{1}{4}$	68	25	63
American Can, pfd.	129 $\frac{1}{2}$	80 $\frac{1}{4}$	96	80	113	89	112 $\frac{3}{4}$
Am. Car & Foundry	56 $\frac{3}{8}$	36 $\frac{1}{4}$	53 $\frac{1}{8}$	42	98	40	81 $\frac{3}{4}$
Am. Cotton Oil	57 $\frac{3}{8}$	33 $\frac{1}{4}$	46 $\frac{1}{8}$	32	64	39	57 $\frac{1}{2}$
Am. Locomotive	44 $\frac{1}{2}$	27	37 $\frac{1}{4}$	29 $\frac{1}{8}$	54 $\frac{1}{2}$	19	71 $\frac{5}{8}$
Am. Smelting & Refining	74 $\frac{1}{4}$	58	71 $\frac{1}{8}$	50 $\frac{1}{8}$	101 $\frac{1}{8}$	56	99
Brooklyn Rapid Transit	92 $\frac{3}{4}$	83 $\frac{1}{4}$	94 $\frac{1}{4}$	79	93	87	89 $\frac{3}{4}$
Chino Copper	47 $\frac{3}{8}$	30 $\frac{3}{8}$	44	31 $\frac{1}{8}$	55 $\frac{1}{8}$	32 $\frac{1}{8}$	54 $\frac{1}{2}$
Colo. Fuel & Iron Co.	41 $\frac{1}{8}$	24 $\frac{1}{4}$	34	29	66	21 $\frac{1}{8}$	51 $\frac{5}{8}$
Consolidated Gas	142 $\frac{3}{8}$	125 $\frac{1}{8}$	130 $\frac{1}{8}$	112	150	117 $\frac{1}{8}$	144
General Electric	187	129 $\frac{1}{4}$	150 $\frac{1}{8}$	137 $\frac{1}{8}$	185 $\frac{1}{8}$	138	176
Interborough-Metropolitan	19 $\frac{1}{8}$	12 $\frac{1}{8}$	16 $\frac{1}{8}$	10 $\frac{1}{8}$	27	10	21 $\frac{1}{2}$
International Harvester	111 $\frac{1}{4}$	96	113 $\frac{1}{8}$	82	114	90	109 $\frac{1}{2}$
Lackawanna Steel	49 $\frac{3}{8}$	29 $\frac{1}{8}$	40	26	94 $\frac{1}{4}$	28	82 $\frac{3}{4}$
National Lead	56 $\frac{1}{4}$	43	52	40	70 $\frac{1}{4}$	44	65
Ray Consolidated Copper	22	15	22	15	27	15	25 $\frac{5}{8}$
Republic Iron & Steel	28 $\frac{3}{8}$	17	27	18	56	19	51
Republic Iron & Steel, pfd.	92 $\frac{1}{4}$	72	94	75	110	79	110
Sloss-Sheffield	45 $\frac{1}{2}$	23	35	19	65	39	60
Texas Co.	132 $\frac{1}{8}$	89	139 $\frac{1}{8}$	132	220	120	211
U. S. Rubber	60 $\frac{1}{2}$	51	63	41	74 $\frac{1}{4}$	48	54 $\frac{3}{8}$
U. S. Steel Corporation	69 $\frac{1}{8}$	49 $\frac{1}{8}$	67	48	88	48	86 $\frac{3}{4}$
U. S. Steel Corporation, pfd.	110 $\frac{3}{4}$	102 $\frac{1}{4}$	112 $\frac{3}{4}$	103 $\frac{1}{2}$	147	99 $\frac{1}{2}$	115 $\frac{1}{2}$
Utah Copper	60 $\frac{5}{8}$	39	59 $\frac{1}{8}$	45 $\frac{1}{8}$	81	48	79 $\frac{5}{8}$
Va.-Carolina Chem.	43 $\frac{1}{8}$	22	44 $\frac{1}{8}$	37	52	16	46 $\frac{7}{8}$
Western Union Telegraph	75 $\frac{3}{8}$	54 $\frac{1}{8}$	66 $\frac{7}{8}$	53 $\frac{3}{8}$	90	57	88

COMPOSITE STEEL.

Computation for December 1, 1915.

Pounds.	Group.	Price.	Extension.
25	Bars	1.70	4.250
1½	Plates	1.70	2.550
1	Shapes	1.70	2.550
1½	Pipe (¾-3)	2.20	3.300
1½	Wire nails	2.00	3.000
1	Sheets (28 bl.)	2.50	2.500
½	Tin plates	3.60	1.800
10 pounds			19.950

One pound 1.9950

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	1.7415	1.5123	1.7737	1.5394	1.4554
Feb.	1.7520	1.4878	1.7625	1.5794	1.4716
Mar.	1.7590	1.4790	1.7646	1.5638	1.5098
April	1.7600	1.5206	1.7742	1.5337	1.5357
May	1.7510	1.5590	1.7786	1.5078	1.5381
June	1.6817	1.5794	1.7719	1.4750	1.5312
July	1.6701	1.6188	1.7600	1.4805	1.5692
Aug.	1.6394	1.6784	1.7400	1.5421	1.6059
Sept.	1.6090	1.7086	1.7093	1.5632	1.6506
Oct.	1.5461	1.7588	1.6779	1.5236	1.7264
Nov.	1.4930	1.7750	1.6203	1.4769	1.9089
Dec.	1.4812	1.7789	1.5558	1.4324	.....
Year	1.6570	1.6214	1.7241	1.5182	.....

SCRAP IRON & STEEL PRICES.

Melting Bundled No. 1 R. R. No. 1 No. 1 Heavy
Steel. Sheet. Wrought. Cast. Steel. Melt'g.
Pitts. Pitts. Pitts. Pitts. Phila. Ch'go.

1914—

Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sept.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25
Dec.	10.50	8.50	10.50	11.00	9.65	8.40
Year	11.42	8.52	11.51	11.71	10.53	9.55

1915—

Jan.	11.40	9.20	10.75	11.25	10.30	9.00
Feb.	11.70	9.25	10.75	11.25	10.70	9.20
Mar.	11.80	9.37	10.75	11.50	10.85	9.25
Apr.	11.65	9.37	10.75	11.85	11.10	9.13
May	11.65	9.37	10.75	11.85	11.25	9.50
June	11.75	9.37	10.75	11.85	11.25	9.75
July	12.62	9.60	11.00	12.00	11.85	10.90
Aug.	14.05	11.40	12.25	12.85	13.70	11.85
Sept.	14.25	11.90	13.15	13.10	14.70	12.15
Oct.	14.50	12.00	13.75	13.35	14.50	12.00
Nov.	16.12	12.55	13.35	13.90	14.65	13.95

COMPOSITE PIG IRON.

Computation for December 1, 1915.

One ton Bessemer, valley	\$18.00
Two tons basic, valley (17,000)	34.00
One ton No. 2 foundry, valley	17.00
One ton No. 2 foundry, Philadelphia	17.75
One ton No. 2 foundry, Buffalo	17.75
One ton No. 2 foundry, Cleveland	17.30
One ton No. 2 foundry, Chicago	18.00
Two tons No. 2 Southern foundry,	
Cincinnati (16.40)	32.80
Total, ten tons	172.60

One ton 17.260

Averaged from daily quotations:

	1911.	1912.	1913.	1914.	1915.
Jan.	14.375	13.420	17.391	13.492	13.070
Feb.	14.340	13.427	17.140	13.721	13.079
Mar.	14.425	13.581	16.775	13.843	12.971
April	14.375	13.779	16.363	13.850	12.914
May	14.242	13.917	15.682	13.808	13.026
June	14.032	14.005	14.968	13.606	13.047
July	13.926	14.288	14.578	13.520	13.125
Aug.	13.874	14.669	14.565	13.516	14.082
Sept.	13.819	15.386	14.692	13.503	14.895
Oct.	13.692	16.706	14.737	13.267	15.213
Nov.	13.532	17.226	14.282	13.047	16.398
Dec.	13.430	17.475	13.838	13.073	.....
Year	14.005	14.823	15.418	13.520	.....

UNFINISHED STEEL**AND IRON BARS.**

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv. Phila. Pitts. Ch'go.
1914—				
June	19.50	20.35	25.00	1.23 1.25 1.08
July	19.50	20.00	25.00	1.19 1.25 1.06
Aug.	20.17	21.08	25.25	1.18 1.25 1.07
Sept.	20.75	21.75	26.00	1.18 1.20 1.07
Oct.	20.00	20.70	26.00	1.14 1.20 1.01
Nov.	19.25	19.75	25.00	1.13 1.20 .96
Dec.	18.75	19.25	24.40	1.12 1.20 .91
Year	20.06	20.82	25.50	1.20 1.27 1.07

1915—

Jan.	19.25	19.75	24.80	1.12 1.20 .97
Feb.	19.25	19.75	25.00	1.12 1.20 1.03
Mar.	19.30	19.80	25.00	1.13 1.20 1.10
Apr.	19.50	20.00	25.00	1.18 1.20 1.14
May	19.50	20.00	25.00	1.18 1.20 1.15
June	20.00†	20.50†	25.00	1.20 1.20 1.17
July	21.40†	21.90†	25.75	1.32 1.20 1.20
Aug.	23.50†	24.00†	27.00	1.43 1.25 1.22
Sept.	25.50†	26.00†	29.75	1.49 1.35 1.30
Oct.	26.00†	26.00†	31.50	1.57 1.45 1.38
Nov.	26.20†	26.50†	36.00	1.72 1.54 1.51

* Premiums for Bessemer.

† Premiums for open-hearth.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our composite finished steel. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently the dates are merely those upon which our quotations were changed. A few other price changes are included.

1915—					
Feb. 11	Pipe	81% to 80%	Aug. 1	Blue ann. sheets	1.40 to 1.50
" 15	Galv. sheets	3.00 to 3.25	Sept. 15	Plates	1.30 to 1.35
" 25	Galv. sheets	3.25 to 3.40	" 15	Shapes	1.30 to 1.35
Mar. 1	Bars	1.10 to 1.15	" 20	Wire nails	1.65 to 1.75
" 1	Plates	1.10 to 1.15	" 28	Sheets	1.90 to 1.95
" 1	Shapes	1.10 to 1.15	" 29	Shapes	1.35 to 1.40
" 1	Wire galvanizing	40c to 50c	Oct. 1	Boiler tubes	72% to 71%
" 17	Wire galvanizing	50c to 60c	" 6	Bars	1.35 to 1.40
April 1	Boiler tubes	75%	" 6	Sheets	1.95 to 2.00
" 1	Bars	1.15 to 1.20	" 7	Blue ann. sheets	1.55 to 1.60
" 1	Plates	1.15 to 1.20	" 15	Bars	1.40 to 1.45
" 1	Shapes	1.15 to 1.20	" 15	Plates	1.40 to 1.45
" 14	Wire nails	1.60 to 1.55	" 15	Shapes	1.40 to 1.45
May 1	Steel pipe	80% to 79%	" 15	Galv. sheets	3.60 to 3.50
" 1	Boiler tubes	75% to 74%	" 19	Black sheets	2.00 to 2.10
" 1	Tin plate	3.20 to 3.10	" 21	Wire nails	1.75 to 1.85
" 12	Plates	1.20 to 1.15	" 25	Blue ann. sheets	1.60 to 1.65
" 17	Galvanized sheets	3.40 to 3.60	" 26	Bars	1.45 to 1.50
" 24	Galvanized sheets	3.60 to 3.75	" 26	Plates	1.45 to 1.50
June 1	Galvanized pipe	62½ to 63½	" 26	Shapes	1.45 to 1.50
" 1	Galvanized sheets	3.75 to 4.25	" 28	Blue ann. sheets	1.65 to 1.70
" 8	Sheets	1.80 to 1.75	" 29	Boiler tubes	71% to 69%
" 9	Galv. sheets	4.25 to 5.00	Nov. 1	Steel pipe	79% to 78%
" 15	Boiler tubes	74% to 73%	" 1	Galv. sheets	3.50 to 3.60
July 1	Bars	1.20 to 1.25	" 4	Black sheets	2.10 to 2.20
" 1	Plates	1.15 to 1.20	" 4	Galv. sheets	3.60 to 3.70
" 1	Shapes	1.20 to 1.25	" 4	Bars	1.50 to 1.60
" 2	Sheets	1.75 to 1.70	" 4	Plates	1.50 to 1.60
" 6	Wire nails	1.55 to 1.60	" 4	Shapes	1.50 to 1.60
" 7	Sheets	1.70 to 1.75	" 5	Tin plate	3.10 to 3.20
" 14	Galvanized sheets	5.00 to 4.50	" 9	Galv. sheets	3.70 to 3.80
" 16	Boiler tubes	73% to 72%	" 9	Blue ann. sheets	1.70 to 1.80
" 20	Plates	1.20 to 1.25	" 12	Tin plate	3.20 to 3.30
" 20	Wire nails	1.60 to 1.55	" 12	Sheets	2.20 to 2.25
" 21	Bars	1.25 to 1.30	" 15	Sheets	2.25 to 2.30
" 28	Galvanized sheets	4.50 to 4.25	" 15	Galv. sheets	3.80 to 4.00
" 29	Wire nails	1.55 to 1.60	" 15	Blue ann. sheets	1.80 to 2.00
Aug. 3	Shapes	1.25 to 1.30	" 16	Wire nails	1.85 to 1.90
" 4	Sheets	1.75 to 1.80	" 18	Bars	1.60 to 1.70
" 6	Black sheets	1.80 to 1.85	" 18	Plates	1.60 to 1.70
" 19	Blue ann. sheets	1.35 to 1.40	" 18	Shapes	1.60 to 1.70
" 23	Wire galvanizing	60c to 70c	" 18	Galv. sheets	4.00 to 4.25
" 24	Wire	1.40 to 1.50	" 21	Galv. sheets	4.25 to 4.50
" 24	Wire nails	1.60 to 1.65	" 26	Sheets	1.40 to 1.50
" 25	Black sheets	1.85 to 1.90	" 26	Galv. sheets	4.50 to 4.75
" 27	Plates	1.25 to 1.30	" 26	Blue ann. sheets	2.00 to 2.25
" 31	Bars	1.30 to 1.35	Dec. 1	Wire nails	1.90 to 2.00
			" 1	Boiler tubes	69% to 68%

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1910.	1911.	1912.	1913.	1914.	1915.
January	\$14,513,394	\$18,738,391	\$18,451,914	\$25,141,409	\$16,706,836	\$18,053,421
February	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260	16,470,751
March	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137	20,985,505
April	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569	25,302,649
May	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045	26,536,612
June	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958	31,757,103
July	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552	35,891,575
August	17,628,537	20,013,557	25,450,107	23,947,440	10,428,817	37,726,822
September ...	16,776,178	19,875,308	23,286,040	22,831,082	12,531,102	38,415,180
October	17,452,085	20,220,833	25,271,559	25,193,887	16,455,832	
November ...	18,594,806	20,823,061	26,406,425	20,142,141	15,689,401	
December ...	18,300,710	22,186,996	23,750,864	22,115,701	14,939,613	

Totals ... \$201,271,903 \$249,656,411 \$289,128,420 \$293,934,160 \$199,861,684 \$251,112,482

EXPORTS OF TONNAGE LINES— Gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
January	74,353	70,109	118,681	152,362	151,575	249,493	118,770	139,791
February	81,773	84,837	110,224	150,919	204,969	241,888	121,206	144,366
March	96,681	94,519	124,980	216,360	218,219	257,519	159,998	174,313
April	93,285	100,91	117,921	228,149	267,313	259,689	161,952	223,240
May	64,041	109,808	135,306	178,589	307,656	242,353	139,107	263,649
June	69,770	114,724	120,601	174,247	273,188	243,108	144,539	355,402
July	86,796	100,850	127,578	162,855	272,778	237,159	114,790	378,897
August	86,244	105,690	131,391	177,902	282,645	209,856	86,599	405,853
September	76,732	97,641	119,155	181,150	248,613	213,057	96,476	381,917
October	85,766	110,821	129,828	186,457	251,411	220,550	147,293	
November	71,130	116,105	155,138	187,554	233,342	175,961	140,731	
December	77,659	137,806	150,102	190,854	235,959	181,715	117,754	

Totals 961,242 1,243,567 1,540,895 2,187,724 2,948,466 2,730,681 1,549,503 2,467,428

IRON ORE IMPORTS.

	1912.	1913.	1914.	1915.
Jan. ..	154,118	175,463	101,804	75,286
Feb. ..	129,693	188,734	112,574	78,773
Mar. ..	157,469	164,865	68,549	88,402
April ..	178,502	174,162	111,812	91,561
May ..	194,482	191,860	125,659	98,974
June ..	180,122	241,069	188,647	118,575
July ..	185,677	272,017	141,838	119,468
Aug. ..	178,828	213,139	134,913	126,806
Sept. ..	180,571	295,424	109,176	173,253
Oct. ..	202,125	274,418	114,341	
Nov. ..	163,017	179,727	90,222	
Dec. ..	199,982	223,892	51,053	

Totals 2,104,576 2,594,770 1,351,368 971,098

IRON AND STEEL IMPORTS.

	1911.	1912.	1913.	1914.	1915.
Jan. ..	33,071	20,008	21,740	17,776	10,568
Feb. ..	20,812	11,622	25,505	14,757	7,506
Mar. ..	23,533	15,466	27,467	27,829	8,025
April ..	22,392	12,481	25,742	30,585	16,565
May ..	23,347	15,949	28,728	28,173	28,916
June ..	29,399	21,407	36,597	23,076	32,200
July ..	15,782	17,882	36,694	25,282	20,858
Aug. ..	10,944	20,571	18,740	28,768	27,556
Sept. ..	14,039	18,740	19,941	38,420	23,344
Oct. ..	21,035	25,559	20,840	22,754	
Nov. ..	13,880	24,154	25,809	24,165	
Dec. ..	19,665	21,231	26,454	9,493	

Total 256,903 225,072 317,260 290,394 175,538

CAR BUYING.

Freight cars ordered:		
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
March	8,000	
April	10,000	
May	10,000	
June	15,000	
July	7,000	
August	3,100	
September	95	
October	1,725	
November	550	
December	1,150	
Year, 1914		80,000
January 1915	3,300	
February	4,255	
March	1,387	
April	3,000	
May	20,210	
June	29,864	
Six months		61,916
July	5,675	
August	1,260	
September	5,060	
October	26,939	
November	19,863	

PIG IRON PRODUCTION.

Rates per annum, including charcoal pig.

January, 1914	22,500,000
February	25,000,000
March	28,000,000
April	28,000,000
May	25,000,000
June	23,650,000
July	23,350,000
August	23,600,000
September	23,200,000
October	21,200,000
November	18,700,000
December	18,100,000
January, 1915	19,100,000
February	22,100,000
March	24,600,000
April	26,000,000
May	26,800,000
June	29,250,000
July	30,300,000
August	31,800,000
September	35,000,000
October	37,100,000
On November 1st	37,500,000
Actual production:	
1910	27,303,567
1913	30,966,152
1914	33,332,244

OUR FOREIGN TRADE.

Value of merchandise imports and exports, and favorable trade balance, calendar years.

	Imports.	Exports.	Balance.
1900	\$829,149,714	\$1,477,946,113	\$648,796,399
1901	880,419,910	1,465,375,860	584,955,950
1902	989,316,870	1,360,685,933	391,369,063
1903	995,494,327	1,484,753,083	489,258,756
1904	1,035,909,190	1,451,318,740	415,409,550
1905	1,179,144,550	1,626,990,795	447,846,245
1906	1,320,501,572	1,798,243,434	477,741,862
1907	1,423,169,820	1,923,426,205	500,256,385
1908	1,116,374,087	1,752,835,447	636,461,360
1909	1,475,520,724	1,728,198,645	252,677,921
1910	1,562,904,151	1,866,258,904	303,354,753
1911	1,532,359,160	2,092,526,746	560,167,586
1912	1,818,133,355	2,399,217,993	581,084,638
1913	1,792,596,480	*2,484,018,292	*691,421,812
1914	*1,789,276,001	2,113,624,059	324,348,049
1913—			
April	146,194,461	199,813,438	53,618,977
May	133,723,713	194,607,422	60,883,709
June	131,245,877	163,404,916	32,159,039
July	139,061,770	160,990,778	21,929,008
Aug.	137,651,553	187,909,029	50,257,467
Sept.	171,084,843	218,240,001	47,155,158
Oct.	132,949,302	271,861,464	138,912,162
Nov.	148,236,536	245,539,042	97,302,506
Dec.	*184,025,571	233,195,628	49,170,057
1914—			
Jan.	154,742,923	204,066,603	49,323,680
Feb.	148,044,776	173,920,145	25,875,369
Mar.	182,555,304	187,499,234	4,943,930
April	173,762,114	162,552,570	†11,209,544
May	164,281,515	161,732,619	†2,548,896
June	157,529,450	157,072,044	†457,406
July	150,677,291	154,138,947	†5,538,344
Aug.	129,767,890	110,367,494	†19,400,396
Sept.	139,710,611	156,052,333	16,341,722
Oct.	137,978,778	195,283,852	57,305,074
Nov.	126,467,062	205,878,333	79,411,271
Dec.	114,656,545	245,632,558	130,976,013
1915—			
Jan.	122,265,267	267,801,370	145,536,103
Feb.	125,123,391	208,727,757	173,604,366
Mar.	158,022,016	296,501,852	138,479,836
Apr.	160,576,106	294,746,117	134,170,011
May	142,284,851	273,769,093	131,484,242
June	157,695,140	268,547,416	110,852,276
July	143,099,620	267,978,990	124,879,370
Aug.	141,830,202	261,025,230	119,195,028
Sep.	151,276,026	300,676,822	149,400,796
Oct.	148,521,620	311,468,578	162,946,958

* High record.

† Balance unfavorable.

STEEL MAKING PIG IRON AVERAGES.

Bessemer and basic pig iron averages, compiled by W. P. Snyder & Company from sales in the valley market of 1,000 tons and over

	Bessemer.		Basic.	
	1914.	1915.	1914.	1915.
Jan. . .	\$14.035	\$13.5375	\$12.325	\$12.50
Feb. . .	14.225	13.60	13.059	12.50
Mar. . .	14.1667	13.60	13.041	12.50
April . .	14.00	13.60	13.00	12.50
May . . .	14.00	13.659	13.00	12.65
June . . .	14.00	13.75	13.00	12.724
July . . .	14.00	13.991	13.00	12.959
Aug. . . .	14.00	15.064	13.00	14.364
Sept. . . .	14.00	15.906	13.00	15.00
Oct. . . .	13.9375	16.00	12.85	15.0147
Nov. . . .	13.6375	16.615	12.477	15.518
Dec. . . .	13.75	...	12.50	...
Year . . .	13.9793	...	12.854	...

Above prices are f.o.b. valley furnace; delivered Pittsburgh is 95 cents higher.

BAR IRON AVERAGES.

Average realized prices on shipments of base sizes of common iron bars by the Republic Iron & Steel Company, Union Rolling Mill Company, Fort Wayne Rolling Mill Company and Highland Iron & Steel Company, as disclosed by wage adjustments of Amalgamated Association of Iron, Steel and Tin Workers, prices realized in bi-monthly periods, governing wage rates for succeeding two months.

	1913.	1914.	1915.
January-February.	1.4831	1.1590	1.024
March-April	1.5430	1.176	1.087
May-June	1.5272	1.1257	*1.10
July-August	1.5029	1.0928	*1.15
September-October	1.3931	1.0847	*1.20
November-December	1.2030	1.037	
Year's average . . .	1.4421	1.1125	

* Settlement basis.

TIN PLATE MOVEMENT.

United States imports and exports of tin plate in gross tons have been as follows, the imports of course including those for drawback purposes:

	Imports.	Exports.
1906	56,983	12,082
1907	57,773	10,293
1908	58,490	11,878
1909	62,593	9,327
1910	66,640	12,459
1911	14,098	61,466
1912	2,053	81,694
1913	20,680	57,812
1914	15,411	59,549
January, 1915	1,608	7,014
February	265	5,834
March	53	10,500
April	44	9,084
May	24	7,218
June	75	8,024
July	71	13,845
August	50	21,939
September	31	22,262

Nine months 2,221 105,109

British tin plate exports have been as follows, in gross tons:

1912	481,123
1913	494,921
1914	435,497
January, 1915	29,216
February	25,101
March	36,170
April	40,135
May	33,727
June	33,986
July	39,528
August	22,572
September	20,002
October	31,968

Ten months 312,405

BRITISH IRON AND STEEL EXPORTS.

1914 -	Pig Iron.	Rails.	Tin Plate	Total.*
Mar. . .	20,172	17,572	36,170	239,342
Apr. . .	35,209	21,602	40,135	264,244
May . .	29,342	21,776	33,727	267,524
June . .	39,127	23,728	33,986	272,195
July . .	78,370	33,224	39,528	351,984
Aug. . .	73,283	32,962	22,572	295,260
Sept. . .	53,068	15,800	20,002	249,501
Oct. . .	78,973	13,640	31,968	312,141
Year . .	90,405	435,440	435,497	3,977,468
1915—				
Jan. . .	21,138	24,411	29,216	230,204
Feb. . .	21,934	14,877	25,101	198,804

* Includes scrap, pig iron, rolled iron and steel, cast and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

TIN.

THE TIN SITUATION.

The market for Straits tin which had closed at 44.75c on the last day of October, opened November 1st with a sudden advance of £5 5s in London and £5 10s in the East Indies which put our spot market at once to 36c. The explanation of this was that the general statistical position which is known in London one day before it is known in New York, showed that the visible supply of tin had decreased over 2,000 tons for the month, the visible supply, spot and afloat, in the world being 13,154 tons. The market remained at around this figure until November 9th at which time a sharp advance started both here and abroad, carrying the price here from 36.50c on November 9th to 44.50c on November 15th, accompanied with considerable excitement. The cause at first was the report of the sinking of steamers by submarines in the Mediterranean, which sea has to be travelled by the vessels bringing tin from the East Indies, and on November 11th a further loss of steamers was reported, with rumors that the British Government had issued an order closing the Suez Canal. The closing of this route would necessitate a delay of three weeks to a month in bringing merchandise from the East Indies and also a higher cost for operating steamers. There began a wild and urgent demand for "safe" tin, that is, tin that had already passed the Canal and also passed Gibraltar, in other words, out of the danger zone. Cablegrams sent asking for a confirmation of the closing of the Suez Canal failed to bring any replies, the Censor for some unexplained reason refusing to allow the question to be answered. As it afterwards turned out there was no truth whatever in the report, but the situation meanwhile was taken advantage of to exploit the market and engineer a speculative movement both here and abroad, and the suspicion is by the same interests who had given out the report here that the Suez Canal was closed, were behind the movement.

The excited effort to secure spot tin en route from London by freighter for consumers, almost paralleled the days of the opening of the war, and on November 12th, although the London price was only equal to 38c bid down in New York, it was still

heavily bought spot tin here at 44c. On November 16th the market reacted to 42.75c on prompt taking, and on the following day the news came out that throughout the Suez Canal was absolutely uninterrupted and had never been interrupted. A decline started which in the next few days resulted in a drop to 39.75c. Most of the buyers who had been hurried into buying at extremely high prices entirely disgusted and satisfied they had been hoodwinked by what might be called a "shell game."

The market after that was very dull, but in the closing days of the month the spot situation became again unsettled by the delay in discharging a cargo of 845 tons on s.s. "Indraghiri", and the fact that 1,100 tons on the s.s. "Indrawadi" was several days over-due, and there was some apprehension as to how sellers would be able to make their November deliveries. This would probably have resulted in another upward movement had it not been that the trade was discouraged and demoralized by the Suez Canal incident. Also it became

TIN PRICES IN NOVEMBER.

Day	New York. Cents.	— London —	
		Prompts.	Futures.
		£ s d	£ s d
1	36.00	163 10 0	162 15 0
2	36.00	161 0 0	159 15 0
3	36.00	162 10 0	161 10 0
4	36.50	163 10 0	162 15 0
5	36.25	162 0 0	161 15 0
8	36.12	162 0 0	161 15 0
9	36.50	162 15 0	162 15 0
10	37.00	164 5 0	164 0 0
11	39.00	167 0 0	166 15 0
12	44.00	172 0 0	171 10 0
13	44.50	176 15 0	175 0 0
16	42.75	172 5 0	171 5 0
17	43.00	174 15 0	173 5 0
18	44.50	177 10 0	176 5 0
19	44.00	172 5 0	171 0 0
22	39.62	172 0 0	170 0 0
23	39.50	168 15 0	167 5 0
24	39.25	166 5 0	165 5 0
25	39.00	166 10 0	166 0 0
26	39.50	168 10 0	167 15 0
29	39.12	168 15 0	167 15 0
30	39.75	168 0 0	167 10 0
High ...	44.50	176 15 0	175 5 0
Low ...	36.00	161 0 0	159 15 0
Average	39.375	167 15 0	166 15 0

TIN.

VISIBLE SUPPLIES.

Visible supply of tin at end of each month.

	1911.	1912.	1913.	1914.	1915.
Jan.	18,616	16,707	13,971	16,244	13,901
Feb.	17,260	14,996	12,304	17,308	14,548
Mar.	16,682	15,694	11,132	16,989	15,467
April	14,441	11,893	9,822	15,447	15,785
May	15,938	14,345	13,710	17,862	14,646
June	16,605	12,920	11,101	16,027	15,927
July	16,707	13,346	12,063	14,167	16,084
Aug.	16,619	11,285	11,261	14,452	15,127
Sept.	16,672	13,245	12,943	14,613	15,191
Oct.	14,161	10,735	11,857	10,894	13,154
Nov.	16,630	12,348	14,170	11,483	16,451
Dec.	16,514	10,977	13,893	13,396	.....
Av'ge	16,404	13,207	12,377	14,907	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	5,895	4,290	4,018	6,050	5,290	5,200
Feb.	4,147	4,290	5,260	4,660	6,520	5,584
Mar.	2,877	4,510	5,150	4,810	4,120	4,970
Apr.	4,025	3,140	4,290	4,400	4,930	5,270
May	4,965	4,310	5,760	6,160	6,900	6,759
June	4,120	5,050	4,290	4,820	5,870	6,665
July	5,040	4,660	4,580	4,770	4,975	5,606
Aug.	5,700	4,680	5,210	6,030	3,315	4,712
Sept.	4,220	5,150	5,430	5,160	4,973	5,296
Oct.	4,480	4,350	4,450	5,020	4,610	4,441
Nov.	4,840	5,070	5,600	5,560	5,155	6,713
Dec.	4,270	5,970	4,980	5,110	6,435	.....
	54,579	55,470	59,018	62,550	63,093	.....
Av.	4,548	4,622	4,918	5,213	5,258	.....

CONSUMPTION IN THE U. S.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1910.	1911.	1912.	1913.	1914.	1915.
Jan.	3,500	3,200	3,700	3,700	3,600	2,300
Feb.	3,600	3,800	4,050	3,500	3,300	3,375
Mar.	4,000	5,100	4,000	5,900	4,450	3,200
Apr.	4,025	4,100	3,300	5,400	3,450	3,200
May	3,600	3,400	4,250	3,350	3,800	5,600
June	5,000	2,900	2,850	3,800	3,650	3,900
July	3,800	4,300	5,150	3,900	3,900	5,300
Aug.	3,700	3,800	4,300	3,600	2,900	4,500
Sept.	3,300	4,200	3,600	3,100	3,600	4,300
Oct.	3,350	3,500	3,850	3,700	3,700	4,900
Nov.	3,800	3,100	4,300	2,800	2,600	2,975
Dec.	3,600	3,700	4,050	3,100	1,900	.....
	45,350	44,300	49,500	43,900	41,700	.....
Av.	3,779	3,692	4,125	3,658	3,475	.....

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Nov. 1915.	Oct. 1915.	Nov. 1914.
Straits shipments	1915.	1915.	1914.
To Gr. Britain	1,828	1,160	3,720
" Continent	825	1,231	250
" U. S.	4,050	2,050	1,185
Total from Straits	6,713	4,441	5,155

Australian shipments			
To Gr. Britain	298	266	nil
" U. S.	nil	nil	nil
Total Australian	298	266	nil

Consumption			
London deliveries	1,402	1,691	2,121
Holland deliveries	147	455	182
U. S.	2,975	4,900	2,600
Total	4,524	7,046	4,903

Stocks at close of month			
In London			
Straits, Australian	1,569	1,794	1,340
Other kinds	1,450	1,441	1,192
In Holland	.....	.....	.....
In U. S.	1,849	2,144	2,026
Total	4,848	5,379	4,558

Afloat, close of month			
Straits to London	2,515	1,917	4,970
To U. S.	8,213	5,543	1,955
Banca to Europe	875	315	.....
Total	11,603	7,775	6,925

	Nov. 30, 1915.	Oct. 31, 1915.	Nov. 30, 1914.
Total visible supply	16,451	13,154	11,483

STRAITS TIN PRICES IN NEW YORK.

	1911.	1912.	1913.	1914.	1915.
Jan.	41.39	43.24	50.45	37.74	34.30
Feb.	42.83	43.46	48.73	39.93	37.32
Mar.	40.76	42.86	46.88	38.08	48.93
Apr.	42.20	44.02	49.12	36.10	47.97
May	43.10	46.12	49.14	33.30	38.78
June	46.16	47.77	44.93	30.65	40.37
July	42.96	44.75	40.39	31.75	37.50
Aug.	43.45	45.87	41.72	50.59½	34.39
Sept.	39.98	49.18	42.47	32.79	33.13
Oct.	41.21	50.11	40.50	30.39½	33.08
Nov.	43.13	49.90	39.81	33.50	39.37½
Dec.	44.97	49.90	37.64	33.60
Year	42.68	46.43	44.32	35.70

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evident that the statistics would show on December 1st extremely small deliveries for the month of November in America, and that the general statistics would therefore be unfavorable.

This anticipation regarding statistics was confirmed. The deliveries for November proved to be only 2,975 tons, or the smallest of any month this year, and the general statistics issued on December 2nd showed that the visible supply had increased about 3,500 tons, standing at 16,451 tons as against 13,151 tons a month before and 11,483 tons for the same date a year ago. There were some further steamers sunk in the Mediterranean but that caused no nervousness in the trade, in fact, the statistics showed that even if a steamer with 1,000 to 2,000 tons was sunk, that the tin could be spared without any great discomfort, and the month closed at 39 $\frac{3}{4}$ c for spot, 38c for December, and 37 $\frac{1}{8}$ c for January.

The market has since continued to decline and closes on December 6th at 37 $\frac{7}{8}$ c for spot, 36 $\frac{3}{4}$ c for December, 36 $\frac{1}{2}$ c for January, 36 $\frac{3}{8}$ c for March and April.

One of the rumors current during the month was that the British Government proposed to put an export duty on pig tin for revenue purposes. Up to the present the talk of an export duty has proved as unreliable as the closing of the Canal, but the tin plate mills are taking no chances. In speaking of large tin plate sales for future delivery that have followed the new price of 3.60 for the coming season, our Pittsburgh office writes:

"No difficulty is being experienced in inserting the two special clauses in tin plate contracts, the one limiting the destination of the tin plate to conform to the British pig tin regulations and the other to pass on to the tin plate buyer any export duty the British may place upon pig tin. The clause is put in the form that the buyer is to pay two cents per box extra, in the case of coke plates, for each cent a pound duty on tin."

Other consumers of tin of course are selling their commodities subject to the guarantees on which they are receiving the metal, and to which guarantees the products they make are also subject, but it would be wise for them to protect them-

selves on the duty question as the tin plate mills are doing.

While the American deliveries were very small in November, the deliveries of the previous four or five months were almost exactly above normal, which indicates that consumers are carrying "safety" stocks as a protection against any interruption in transportation. While the statistical position is an unfavorable one, still it is well to remember that tin has got down again to a low basis, especially so for deliveries during the first quarter of next year which can be bought around 36 $\frac{3}{8}$ c. This price is

8c	per lb.	under the average of 1913
10c	"	" " " " 1912
6c	"	" " " " 1911

which were years prior to the war.

It would seem under all circumstances a favorable basis for consumers to contract for their future requirements, and this is quietly being done by some of the larger consumers. The average American buyer seems to delight, however, in buying freely when the market is excited and advancing, and in that way they lay themselves open to be constantly exploited. While there is nothing in sight as regards the fundamental and statistical position of the article to cause higher prices in the near future, it must be remembered that at any moment vessels bringing tin may be sunk; the Suez Canal may be closed, England may decline in tin what she has done in rubber, namely, to issue an order that at no time must stock of tin in the British Isles fall below a certain amount and when it does all shipments to other countries shall be suspended until said amount is accumulated again. Also it is quite probable that for revenue purposes a duty may be placed on pig tin. Any of these happenings would of course lead to a heavy advance, and consumers would do well to carry "safety" stocks against these contingencies.

A WARNING TO PIG TIN CONSUMERS.

The "American Metal Market and Daily Iron and Steel Report," has issued the following warning:

"Letters which we are constantly receiving show that many consumers, and for that matter some of the smaller dealers, do not

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fully understand the **British rules and regulations** governing the purchase and sale of pig tin or the importance of abiding by them. It would appear that some few consumers have been getting tin and signing the tin guarantee form No. 2 without very carefully reading it, and after signing the guarantee they seem to forget whether it was a consumer's guarantee, which forbids the resale of the tin, or whether it was a dealer's guarantee. **A buyer cannot be both a dealer and a consumer.**

"Consumers buying in five ton lots or over have to sign a guarantee in which they expressly bind themselves not to resell the tin, or to export it, or to export any product made from the tin and the smaller consumers have to make the same promise to their dealers. If they break this agreement, or if any dealer countenances the breaking of the agreement by buying the tin from the consumer, should it be traced back, **the offending parties would find themselves cut off from getting further supplies.** But not only that, the breaking of the agreement would jeopardize the entire American tin trade. It was only by effort on the part of the Tin Committee of the Metal Exchange that the British government agreed to raise the embargo and allow tin to reach the American trade under certain conditions. England's interest is not to see that American business thrives, but to win the war, which they are waging with their enemies. They would have no compunction in again putting on an embargo on tin if they find they are not being treated right in the matter of these guarantees. It is useless to discuss the reasonableness or unreasonableness of their requirements. There is nothing to do but to comply with them strictly to the minutest detail and we wish to particularly caution the trade in that respect."

COMPOSITE METAL PRICES.

Computation of December 1, 1915.

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	17.75	44.375
4	Lead (St. Louis)	5.20	20.800
3	Copper (Electro)	19.75	59.250
½	Tin (New York)	39.00	19.500
10 pounds			143.925
One pound			14.3925

COPPER SITUATION.

The Copper "propaganda", that has been steadily at work during the last month or two, and has been referred to in these pages, has been a complete success. The large producers, during the month of November, have been able to unload some two hundred million pounds of copper between home consumers and the warring nations of Europe.

This movement has relieved producers of considerable surplus stock, and a good proportion of their output for the first three months of the coming year. Some sales have been made covering the whole of 1916 deliveries at around 18 cents delivered. It was hinted at the time these sales were probably "short" sales, and it is more than probable that these sales will turn out a very good "investment."

The London market started the advance and prices here were pushed up very rapidly. At the end of October spot Standard was £73, futures £73 10s., and Electrolytic £88 10s. In the New York market producers were sellers at 18 cents for Electrolytic on the usual delivered terms, by the 22nd of the month spot and future Standard in London had advanced to £82 15s, this was the high point for Standard for the month and from that time the price of Standard began to decline. Electrolytic on that day was £96 10s. This decline of Standard might have stopped the buying movement but the producers' selling agent in London pegged up the price of Electrolytic to £99 10s. by the 30th of November, an advance of £3 per ton in Electrolytic while Standard during the same period declined £3 5s. to £79 10s. making a difference in the price of Standard and Electrolytic of £20 per ton. In the New York market the price of Electrolytic during the month was advanced 2 cents per pound from 18 to 20 cents, and sales reported at the top price, while one producer was said to be a seller at ¼ cent per pound less.

Wall Street was busy with reports that German interests had placed large contracts for delivery after the war on 60 days' notice, the amounts were estimated at from 100 million to 200 million pounds. These reports, which no doubt, serving their purpose of "bulling" the market,

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LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.75	14.37 $\frac{1}{2}$	16.89	14.76 $\frac{1}{2}$	13.89
Feb.	12.73	14.38 $\frac{1}{2}$	15.37 $\frac{1}{2}$	14.98	14.72
Mar.	12.56	14.87	14.96	14.72	15.11
Apr.	12.41	15.98	15.55	14.68	17.43
May	12.32	16.27	15.73	14.44	18.81
June	12.63	17.43	15.08	14.15	19.92
July	12.72	17.37	14.77	13.73	19.42
Aug.	12.70	17.61	15.79	12.68	17.47
Sept.	12.57	17.69	16.72	12.44	17.76
Oct.	12.47 $\frac{1}{2}$	17.69	16.81	11.66	17.92 $\frac{1}{2}$
Nov.	12.84	17.66	15.90	11.93	18.86
Dec.	13.79	17.62 $\frac{1}{2}$	14.82	13.16	.....
Av.	12.71	16.58	15.70	13.61	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.53	14.27	16.75 $\frac{1}{2}$	14.45	13.71
Feb.	12.48	14.26	15.27	14.67	14.572
Mar.	12.31	14.78	14.92 $\frac{1}{2}$	14.33 $\frac{1}{2}$	14.96
Apr.	12.15 $\frac{1}{2}$	15.85	15.48	14.34	17.09
May	12.13	16.16	15.63	14.13	18.60
June	12.55	17.29	14.85	13.81	19.71
July	12.62 $\frac{1}{2}$	17.35	14.57	13.49	19.08
Aug.	12.57 $\frac{1}{2}$	17.60	15.68	12.41 $\frac{1}{2}$	17.22
Sept.	12.39	17.67	16.55	12.09	17.70
Oct.	12.36	17.60	16.54	11.10	17.86
Nov.	12.77	17.49	15.47	11.74	18.83
Dec.	13.71	17.50 $\frac{1}{2}$	14.47	12.93	.....
Av.	12.55	16.48	15.52	13.31 $\frac{1}{2}$	.....

CASTING COPPER PRICES.

Average monthly prices of Casting Copper in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	12.39	14.02	16.57	14.27 $\frac{1}{2}$	13.52
Feb.	12.33	14.02	15.14	14.48	14.173
Mar.	12.20	14.53	14.76	14.18	14.34
Apr.	12.07	15.72 $\frac{1}{2}$	15.53	14.18	16.48
May	12.08	16.01	15.45 $\frac{1}{2}$	14.00	17.41
June	12.40	17.08	14.72	13.65	18.74
July	12.49 $\frac{1}{2}$	17.09	14.40 $\frac{1}{2}$	13.34 $\frac{1}{2}$	17.76
Aug.	12.42	17.35	15.50	12.27	16.46
Sept.	12.23	17.51	16.31 $\frac{1}{2}$	12.00	16.15
Oct.	12.21	17.44	16.33	11.29	17.12
Nov.	12.61	17.34	15.19	11.67	18.41
Dec.	13.56 $\frac{1}{2}$	17.34	14.22	12.83 $\frac{1}{2}$	.....
Av.	12.42	16.29	15.33	14.38	.....

SHEET COPPER PRICE CHANGES.

The changes in the base price of sheet copper since January 16, 1915, are given in the following table together with the price of Lake copper on the same dates:

1915—	Sheet Copper.	Lake Copper.
January 16	18.75	13.75
January 21	19.00	14.12 $\frac{1}{2}$
January 25	19.50	14.37 $\frac{1}{2}$
January 29	19.75	14.62 $\frac{1}{2}$
March 22	20.25	15.12 $\frac{1}{2}$
March 25	20.50	15.43 $\frac{1}{2}$
March 27	20.75	15.75
April 8	21.00	16.50
April 13	21.25	16.62 $\frac{1}{2}$
April 14	21.50	16.75
April 17	22.00	17.00
April 19	22.50	17.62 $\frac{1}{2}$
April 22	23.00	18.00
April 28	24.00	18.93 $\frac{1}{2}$
June 8	24.50	19.62 $\frac{1}{2}$
June 9	25.00	19.87
July 27	24.50	18.87 $\frac{1}{2}$
July 31	24.00	18.75
August 18	23.00	16.75
November 3	21.25	18.00
November 15	21.50	18.61 $\frac{1}{2}$
November 16	21.75	18.75
November 17	21.00	18.87
November 18	21.25	19.00
November 22	21.50	19.87
November 2	21.00	19.87

EXPORTS OF COPPER FROM THE UNITED STATES.

(In tons of 2,240 lbs.)

	1912.	1913.	1914.	1915.
January ..	31,229	25,026	36,018	36,136
February ..	31,894	26,732	44,334	17,758
March ..	27,074	42,428	40,503	36,148
April ..	22,591	31,274	35,970	18,708
May ..	24,684	38,693	32,777	38,888
June ..	26,060	28,017	37,182	16,376
July ..	26,167	27,766	37,000	37,768
August ..	29,526	27,072	44,709	13,000
September ..	21,314	44,706	41,500	38,877
October ..	25,420	26,700	37,700	40,888
November ..	19,171	27,758	37,000	36,000
December ..	26,474	30,670	22,166
Total ..	27,965	328,846	399,220

* Includes only exports from Atlantic ports.

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failed to receive any official confirmation. Some purchases were made by some of the leading German electrical firms but the amount secured was not more than 10 to 15 million pounds.

In looking into the copper situation as a whole it is interesting to note that the orders for war munitions are likely to be very much less during the coming year for the reason that the countries we have been supplying have been gradually organizing to supply probably a large proportion of their needs, from their own factories.

This change in conditions will surely be indicated in the increased exports of copper. During November the exports were 19,396 tons while during the first few days of December the exports are close to 1000 tons a day or say about 30,000 tons for the month.

With the end of November the buying movement seems to have entirely ceased, consumers appear to be all covered and offers to sell at nearly $19\frac{3}{8}$ cash N. Y. or $\frac{1}{2}$ to $\frac{5}{8}$ c per pound below producers' late prices have met with no response. The indications are that the market will be quiet and dull again during December, and perhaps also in January.

There is no doubt the sensational developments in the steel trade have had a great deal to do in converting consumers from the belief in lower prices to willingness to buy freely on the advancing market. The market has almost reached the high price of $20\frac{1}{2}$ c in June, which was followed by a slump to 17c. But the conditions that caused that slump do not exist to-day.

The entire metal market then was declining from the extraordinary advances of June, and great mental demoralization existed at that time. To-day the business situation has made enormous strides, and the outlook is very promising. It is quite evident, however, that the copper trade has discounted in the recent heavy advance a great deal of the change in the business position and outlook. As regards the statistical position there is no reason to believe it has undergone any great change, but what do buyers care for statistics when they see the market advancing every day.

Opinions differ as to how long a dull market may be expected to last. Some hold that the new year will open so pro-

piciously that by the middle of January the buying will be again in full swing. Others point to the very heavy sales producers claim to have made in November, and that consumers are so well covered that unless some unexpected feature comes up to excite a buying interest, the dullness may easily extend into February.

Should this be the case, will producers hold at their present figures if they have to face a long dull spell? and how long will the second hand lots which are now making the market for small lots hold out?

In forming an opinion the high price and large production must be considered, and also what the market will do abroad. Our opinion is that the foreign market will be the controlling influence during the next two months. As regards war orders we believe they have reached and passed their zenith in this country, and the enormous preparations being made by the Allies to manufacture at home is bound to be felt, if not in the consumption of copper for the world at least in the consumption of

COPPER PRICES IN NOVEMBER.

— New York — London.

	Lake.		Electro.	Casting.	Standard.			
Day.	Cents.	Cents.	Cents.	£	s	d		
1	18.06 $\frac{1}{4}$	18.06 $\frac{1}{4}$	17.50	75	2	6		
2 ....	.....	.....	.....	74	5	0		
3	18.06 $\frac{1}{4}$	18.06 $\frac{1}{4}$	17.62 $\frac{1}{2}$	74	10	0		
4	18.12 $\frac{1}{2}$	18.06 $\frac{1}{4}$	17.62 $\frac{1}{2}$	74	0	0		
5	18.12 $\frac{1}{2}$	18.12 $\frac{1}{2}$	17.62 $\frac{1}{2}$	74	0	0		
8	18.12 $\frac{1}{2}$	18.12 $\frac{1}{2}$	17.62 $\frac{1}{2}$	73	5	0		
9	18.12 $\frac{1}{2}$	18.12 $\frac{1}{2}$	17.62 $\frac{1}{2}$	74	2	6		
10 ...	18.18 $\frac{3}{4}$	18.18 $\frac{3}{4}$	17.75	74	17	6		
11	18.18 $\frac{3}{4}$	18.18 $\frac{3}{4}$	17.87 $\frac{1}{2}$	75	10	0		
12	18.37 $\frac{1}{2}$	18.37 $\frac{1}{2}$	18.12 $\frac{1}{2}$	77	10	0		
15 ...	18.62 $\frac{1}{2}$	18.62 $\frac{1}{2}$	18.37 $\frac{1}{2}$	78	10	0		
16 ...	18.75	18.75	18.37 $\frac{1}{2}$	78	5	0		
17	18.87 $\frac{1}{2}$	18.87 $\frac{1}{2}$	18.50	79	15	0		
18	19.00	19.00	18.62 $\frac{1}{2}$	79	15	0		
19	19.25	19.25	18.87 $\frac{1}{2}$	81	5	0		
22 ...	19.87 $\frac{1}{2}$	19.75	19.25	82	15	0		
23	19.87 $\frac{1}{2}$	19.75	19.37 $\frac{1}{2}$	81	15	0		
24	19.87 $\frac{1}{2}$	19.75	19.37 $\frac{1}{2}$	80	10	0		
25 ....	.....	.....	.....	80	0	0		
26	19.87 $\frac{1}{2}$	19.75	19.37 $\frac{1}{2}$	81	0	0		
29	19.87 $\frac{1}{2}$	19.87 $\frac{1}{2}$	19.37 $\frac{1}{2}$	80	5	0		
30	19.87 $\frac{1}{2}$	19.87 $\frac{1}{2}$	19.37 $\frac{1}{2}$	79	10	0		
High	19.87 $\frac{1}{2}$	19.87 $\frac{1}{2}$	19.37 $\frac{1}{2}$	82	15	0		
Low	18.06 $\frac{1}{4}$	18.06 $\frac{1}{4}$	17.50	73	5	0		
A'v'ge.	18.856	18.828	18.412	77	14	10		

COPPER

copper in America. For this reason our exports during the next two months, and the foreign demand, should be closely watched.

AMERICAN COPPER MINES DIVIDENDS.

The dividend experience of the 2,000 mines, omitting those which have paid less than \$5,000,000, is given below:

Dividends Paid to Date.

Arizona Copper	\$20,580,000
Anaconda	97,700,000
Baltic Mining	8,000,000
Calumet & Hecla	126,250,000
Calumet & Arizona	21,560,000
Nevada Consolidated	18,220,000
Kennecott	5,000,000
Copper Range Consolidated	14,900,000
Quincy	21,220,000
Superior & Pittsburg	9,180,000

Timberline	1,100,000
Utah Copper	28,000,000
Utah Consolidated	8,500,000
Wolverine	8,200,000
North Butte	1,200,000
Old Dominion	7,200,000
Oscoda	12,000,000
United Verde	1,170,000
Columbia	10,000,000

Important foreign companies whose dividends are derived from mining and smelting are listed below:

	Dividend
Amalgamated Copper Co.	\$91,240,000
American Smelting & Ref. Co.	80,000,000
American Smelters Securities Co.	25,000,000
International Nickel Co.	20,000,000
National Lead Co.	8,800,000
Phelps, Dodge & Co.	41,500,000
United States Smelting	22,300,000
Guggenheim Exploration	22,500,000

AMERICAN COPPER MINES EARNINGS.

	Present Rate	Estimated	Estimated	% Earnings		
	of Production	Cost	Earnings	Present	on Present	on Present
	Pounds.	per lb.	per share.	Market.	Prices.	Div. Rate
Ahmeeek	25,000,000	8.00	\$15.00	25	15.80	\$10.00
Allouez	10,000,000	9.0	11.00	58	18.9	1.00
Anaconda	270,000,000	9.0	15.00	80	14.4	1.00
Braden	35,000,000	9.0	15.0	16	9.4	—
Cal. & Ariz.	65,000,000	8.0	12.50	70	17.8	1.00
Cal. & Hecla	80,000,000	10.0	80.00*	567	15.8	60.00
Chino	75,000,000	7.0	14.25	55	20.4	1.00
Copper Range	40,000,000	8.6	12.00	62	19.5	3.00
East Butte	20,000,000	11.0	4.50	16	28.1	—
Granby	40,000,000	11.0	20.00	85	23.5	5.00
Isle Royale	10,000,000	11.0	6.00	28	21.5	—
Miami	45,000,000	8.5	6.75	35	19.3	4.00
Mohawk	15,000,000	8.0	18.00	87	20.7	10.00
Nevada Con.	70,000,000	8.0	4.20	77	24.5	1.50
North Butte	30,000,000	10.0	7.00	32	22.5	2.00
Old Dominion	35,000,000	9.0	17.00	60	21.6	8.00
Oscoda	20,000,000	10.0	21.00	85	24.5	12.00
Quincy	22,000,000	11.0	18.00	60	20.0	12.00
Ray Con.	65,000,000	9.0	4.75	76	18.7	1.50
Shattuck-Ariz.	15,000,000	8.0	5.00	36	13.9	4.00
Utah Copper	175,000,000	7.0	14.50	70	8.7	1.00
Wolverine	7,500,000	8.5	14.00	50	21.8	10.00

* Earnings from copper production alone, not including the same from silver production.

† Paid one dividend of \$1 July 1, 1915.

LEAD.

LEAD SITUATION.

The month opened with the Trust and inside markets at 4.90c New York and 4.82c East St. Louis, and the London market advancing. There being a good export demand, the Trust on November 4th advanced their price to 5.00c New York. This brought in good domestic demand, the feature being that the sheet lead trade was particularly good, and large purchases were made by these manufacturers. It became evident at this time that the independents had well sold themselves up, and second hands had very little metal, with the Trust in complete control of the situation, and there was nothing to prevent their making a further advance if they were so disposed.

On November 10th, the Trust again advanced their price \$3 a ton to 5.15c New York. The advance seemed to have no effect in creating profit taking by outside interests, and it was evident that dealers and second hands had been caught unpre-

pared for the advance and had no stocks. Nearly all the orders being placed were falling into the hands of the American Smelting & Refining Company, and the further advance which took place therefore on November 15th of \$2.00 a ton to 5¼c New York, 5.17½c East St. Louis, was therefore not unexpected. The market for the balance of the month has remained firm at this figure, until just at the close, when with the general sagging off in business in all metals, there have been indications of a desire by second hands to shade prices. The month closes with the Trust holding at 5.25c New York and 5.17½c East St. Louis, but second hand lots are coming out from time to time at concessions of 2½c to 5c per 100 pounds. The outlook is for a quiet market during December. The market seems to be in a fairly sound position, although there is no means of knowing what the statistical position is, this being closely guarded by the Trust.

With the general improvement in domestic trade, home consumption is good, and as long as the war lasts this metal must continue in large demand for ammunition purposes here and abroad.

LEAD PRICES IN NOVEMBER.

Day.	New York.* Cts.	St. Louis. Cts.	London. £ s d
1	4.90	4.82½	23 12 6
2		...	24 0 0
3	4.90	4.82½	24 10 0
4	5.00	4.92½	24 6 3
5	5.00	4.92½	24 15 0
8	5.00	4.92½	24 12 6
9	5.00	4.92½	24 15 0
10	5.15	5.07½	24 15 0
11	5.17	5.07½	25 2 6
12	5.17½	5.07½	26 2 6
15	5.25	5.17½	26 11 6
16	5.25	5.17½	27 2 6
17	5.25	5.17½	27 0 0
18	5.25	5.17½	26 6 3
19	5.25	5.17½	27 0 0
22	5.25	5.17½	27 7 6
23	5.25	5.17½	27 15 0
24	5.25	5.17½	28 2 6
25	...	...	28 12 6
26	5.25	5.17	28 15 0
29	5.25	5.20	28 15 0
30	5.25	5.20	28 0 0
High	5.25	5.22½	29 0 0
Low	4.90	4.82½	23 12 6
Average	5.152	5.077	26 6 7
Outside market			

LEAD PRICE CHANGES.

The changes in the Trust price at New York since June 10, 1915, have been as follows:

June 10	Advanced	.25c to 6.25
June 11	"	.25c to 6.50
June 12	"	.50c to 7.00
June 17	Reduced	.75c to 6.25
June 18	"	.25c to 6.00
June 19	"	.25c to 5.75
July 30	"	.25c to 5.50
August 2	"	.25c to 5.25
August 7	"	.25c to 5.00
August 9	"	.25c to 4.75
August 10	"	.25c to 4.50
August 25	Advanced	.10c to 4.60
August 26	"	.10c to 4.70
August 27	"	.20c to 4.90
September 9	Reduced	.20c to 4.70
September 14	"	.20c to 4.50
October 21	Advanced	.25c to 4.75
October 29	"	.15c to 4.90
November 4	"	.10c to 5.00
November 10	"	.15c to 5.15
November 15	"	.10c to 5.25

ANTIMONY — ALUMINUM

ANTIMONY SITUATION.

The antimony market opened very strong at 35.75 cents for Chinese and Japanese and 34 cents in bond, American was quoted at 34.50 to 35 cents.

The market was fairly active during the first half of the month and prices advanced each day, the buying was mostly for prompt and November delivery. Importers were not free sellers of futures and this condition tended to strengthen the demand for spot and nearby deliveries. On the 15th of the month prices had advanced to 37.50 cents for spot and 34 cents in bond, January delivery in bond was then obtainable at 33 cents. The next day there was some big buying of prompt delivery lots and the spot market became more or less acute.

War restrictions were now imposed on all shipments from China and Japan, but new development seemed to have no special effect on the market.

Prompt delivery lots were in constant demand and there were very little stocks to draw on. During the latter half of the month there was a large demand for futures and sales were made as far ahead as March. The cheapest limits at that time were 34.50 in bond New York for November shipments from China or Japan and 33.50 for December-January. Later in the month spot antimony sold at 40 cents.

The arrival of the "Indraghiri" on Nov. 23rd did not relieve the situation materially as these stocks had already been sold but with the arrival of this shipment and the

advice of three more steamers due to arrive by December 10th, the market became dull and quiet and the "scrap" for the time being has disappeared from the market.

ALUMINUM SITUATION.

Prices have advanced from 4 to 5 cents per pound during the month of November against advances of about 6 cents during October.

The situation is less acute than for several weeks past. The home demand has not been as urgent and buyers have, more or less, been able to secure the metal they needed at their own price instead of having to pay the fancy prices some *traders* were inclined to ask.

The present abnormal high prices are continually bringing out more metal from second hands. There are to-day several hundred tons of transmission and cable wire on the market and the probability is that more of this material will be for sale. At the same time, we are informed, the domestic smelter is making closer deliveries on all contract metal and several lots of this low priced contract metal are now on the market.

The export demand has not been very active, total exports for the month were 77 tons against 305 tons in October and 483 tons in September.

No. 1 Virgin is offered at 50 cents, 98.99% pure at 58 cents and No. 12 alloy remelted at 50 cents.

COMPOSITE METAL PRICES.

Monthly averages:

	1911.	1912.	1913.	1914.	1915.
Jan.	12.87½	14.50	17.00	14.75	14.12½
Feb.	12.75	14.50	15.50	15.12½	15.25
Mar.	12.50	15.00	15.12½	15.00	15.75
Apr.	12.50	16.00	15.75	14.87½	18.50
May	12.37½	16.37½	15.87½	14.75	22.50
June	12.62½	17.50	15.37½	14.37½	22.50
July	12.75	17.75	14.75	14.12½	22.25
Aug.	12.75	17.75	15.62½	13.00	19.50
Sept.	12.62½	17.87½	16.87½	12.87½	18.50
Oct.	12.50	17.75	16.87	12.25	18.25
Nov.	12.87½	17.75	16.25	12.25	19.37½
Dec.	13.87½	17.75	15.00	13.50	....
Av.	12.75	16.71	15.81	13.91	....

	1912.	1913.	1914.	1915.
January	9.778	10.987	9.165	8.836
February	9.677	10.260	9.294	8.880
March	9.886	10.024	9.026	10.977
April	10.277	10.198	8.844	11.977
May	10.468	10.163	8.668	13.063
June	11.014	9.648	8.444	13.772
July	11.043	9.338	8.445	14.929
August	11.092	10.025	9.131	12.270
September ..	11.575	10.350	8.067	12.506
October	11.596	10.029	7.500	12.291
November ..	11.472	9.590	7.871	13.867
December ..	11.219	9.053	8.400	....
Year	10.750	9.977	8.555	....

ANTIMONY — ALUMINUM

COOKSONS ANTIMONY.

Average monthly price of Cooksons antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	8.13	7.59	9.66	7.31	17.56
Feb.	8.46	7.22	9.31	7.24	20.43
Mar.	9.50	7.52	9.03	7.23	27.84
Apr.	9.47	8.00	9.00	7.22	32.07
May	9.48	8.00	8.77	7.29	39.75
June	8.86	8.00	8.63	7.21	.....
July	8.50	8.26	8.47	7.11	.....
Aug.	8.44½	8.51	8.38	16.23	.....
Sep.	8.27	8.84	8.30½	12.19	.....
Oct.	8.08	10.22	7.66	13.87	.....
Nov.	7.94	10.31	7.52	17.26	.....
Dec.	7.81	10.06	7.45	15.82	.....
Av..	8.58	8.54	8.52	10.50	.....

HALLETT'S ANTIMONY.

Average monthly price of Hallett's antimony in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.62½	7.61	9.18½	7.02	16.44
Feb.	8.01	7.41	9.00	7.00	19.25
Mar.	9.20	7.49	8.66	6.95	24.12
Apr.	8.97	7.75	8.35	6.90	29.41
May	9.01	7.75	8.23	6.89½	.....
June	8.49	7.75	8.11	6.85	.....
July	8.04	7.79	8.05	6.79	.....
Aug.	7.77½	7.87	7.93	14.90	.....
Sep.	7.76	8.31	7.75½	11.19	.....
Oct.	7.69	9.48	7.31	12.78½	.....
Nov.	7.70	9.64	7.26	15.84	.....
Dec.	7.70	9.40	7.06	14.74	.....
Av..	8.16	8.19	8.07½	9.82	.....

CHINESE and JAPANESE ANTIMONY.

Average monthly price of Chinese and Japanese (ordinary brands) in New York.

	1911.	1912.	1913.	1914.	1915.
Jan.	7.15	6.89	8.77½	6.03	15.24
Feb.	7.53	6.78	8.16	6.00	17.62
Mar.	8.75	6.78	7.91	5.94½	20.93½
Apr.	8.34	6.87	7.82	5.82	23.97
May	8.06	6.98	7.75	5.78	34.71
June	7.38	7.07	7.62	5.62½	36.53
July	7.32	7.37	7.55	5.44	35.98
Aug.	7.22	7.58	7.48	13.05	32.119
Sept.	7.13	8.00	7.31	9.79½	28.50
Oct.	6.94	9.11	6.46	11.64	30.96
Nov.	6.94	9.11	6.28	14.14	37.881
Dec.	6.97	9.05	6.05	13.15	.....
Av..	7.48	7.63	7.43	8.53½	.....

ALUMINUM, SILVER and ANTIMONY PRICES IN NOVEMBER.

Day.	Aluminum.	— Silver —			Antimony*
	N. Y. Cents.	N. Y. Cents.	London. Pence.	N. Y. Cents.	
1	.....	49½	24½	35.75	.....
2	.....	.....	24½	.....	.....
3	.....	49½	24½	35.75	.....
4	.....	50	24½	36.00	.....
5	.....	50	24½	36.00	.....
6	.....	49½	24½	.....	.....
8	.....	50½	24½	36.25	.....
9	55.00	50½	24½	36.25	.....
10	55.00	50	24½	36.25	.....
11	55.00	50½	24½	36.37½	.....
12	55.00	50½	24½	36.50	.....
13	.....	50½	24½	.....	.....
15	56.00	50½	24½	37.50	.....
16	57.00	50½	24½	38.00	.....
17	57.00	51	24¾	39.00	.....
18	57.00	51½	24½	39.00	.....
19	57.00	51½	25	39.50	.....
20	.....	51½	24½	.....	.....
22	57.00	52½	25½	39.75	.....
23	57.00	52¾	25½	39.75	.....
24	57.00	54½	26½	40.00	.....
25	.....	.....	26½	.....	.....
26	58.00	56	27	40.00	.....
27	.....	56½	27½	.....	.....
29	58.00	56½	27½	40.00	.....
30	58.00	56½	27½	40.00	.....
High	58.00	56½	27½	40.00	.....
Low	55.00	49½	24½	35.50	.....
Av'ge	.....	51.713	25.094	37.88	.....

* Chinese and Japanese.

ALUMINUM and SILVER PRICES.

	New York			Silver		
	—Aluminum—			—Silver—		
	1913.	1914.	1915.	1913.	1914.	1915.
Jan.	26.31	18.86	19.01	62.93	57.56	48.89½
Feb.	26.20	18.80½	19.20	61.64	57.50½	48.48
Mar.	26.72	18.30	18.95	57.87	58.07	50.24
Apr.	26.91	18.08	18.83	59.49	58.52	50.25
May	25.95	17.93	21.85	60.36	58.18	49.91
June	24.79	17.82	29.66	58.99	56.47	49.07
July	23.34	17.59	32.50	58.72	54.68	47.52
Aug.	22.73	20.38	34.00	59.29	54.34	47.18
Sep.	22.00	19.28½	46.75	60.64	53.29	48.68
Oct.	20.32	18.25	54.17½	60.79	50.65	49.38½
Nov.	19.49	18.83	.....	58.99	49.10	51.71
Dec.	18.35	19.02	.....	57.76	49.38	.....
Av.	23.63	18.59½	.....	59.79½	54.81	.....

SPELTER.

SPELTER SITUATION.

The spelter market opened dull at 14½c to 14¾c East St. Louis, consumers had stopped buying after the rise in prices late in October.

The London market was active and price advanced £1 to 73, equivalent to 15.15c. London continued to advance, £3 on November 3rd and prices here advanced ½c to 14½c to 15c. The demand was not active and prices had now advanced about 2 cents per pound without any buying. On the 1th London came £1 higher to £77, making the London price to-day £5 higher than on August 31st when our market was 1½ cents lower. Prices here were advanced ¼ cent but buyers did not take hold. For the next few days the market here was more or less dull. Some quiet buying was reported by some of the big buyers and prices were advanced ⅛ cent. On the 8th and 9th the St. Louis market was very active with heavy buying and prices were up to 15¾ to 15¾c. Prices that day showed an advance of 2½ cents for prompt and 3½ cents for futures since October 18th. On November 10th the buying ceased and the market was dull and easier on free offerings of futures and dealers who were buyers the day before came out as sellers. On the 11th London came £7 up on a corner in that market, making the price £85 10s, equal to 17½c London.

The market here was quiet at 16½c for spot and November, 15½c for December, 14½c for first quarter and 13c for second quarter. Our market was not able to take advantage of the squeeze in London on account of the scarcity of freight room. For spot and November 16½c was asked and 15½c for December, next day sales were made at 16½c. London came £1 10s higher again. November 15th the iron market became very excited, the iron and steel markets were active and advancing. Copper was being pushed up ½ cent a pound in a day and the buying fever struck the spelter crowd, 17 cents was bid for spot, 16½c for December and 16½c for January. Prices continued to advance until the 20th when London advanced to £100 for spot and £85 for futures, equal to 20½c for prompt and 17 80c for futures. Our market

was up to 18½c to 19c on good buying on the 21st, the London spot price was unchanged at £100 but futures were quoted at £92, equal to 19.50 February. This is a normally rapid advance in London began to be taken rather skeptically over here as seemed to have the earmarks of manipulation. It is not the first time the spelter buyers have been the victims and although London advanced to £105 spot on November 26th and £90 for futures, buyers here did not respond and the market closed dull and easier with anxious sellers of futures and no buyers. At the close the market was weak with free offerings at ½c per pound below the highest.

SPELTER PRICES IN NOVEMBER.

Day	St. Louis. Cents.	London. £ s d
1	14.50	73 0 0
2	14.50	75 0 0
3	14.87½	76 0 0
4	15.12½	77 6 0
5	15.12	77 0 0
6		
7		
8	15.37	78 10 0
9	15.87	78 10 0
10	15.81	78 10 0
11	16.12	85 10 0
12	16.31	87 0 0
13		
14		
15	17.12	86 0 0
16	17.25	86 0 0
17	17.25	86 0 0
18	17.37	87 0 0
19	18.12	88 0 0
20		
21		
22	18.75	100 0 0
23	18.75	100 0 0
24	18.62	100 0 0
25	18.62	102 0 0
26	18.62	102 0 0
27		
28		
29	18.12	100 0 0
30	18.12	100 0 0
High	19.00	105 0 0
Low	14.37	70 0 0
Average	16.875	88 8 2

SPELTER

SHEET ZINC PRICE CHANGES.

The following table gives the changes in the price of sheet zinc March 1st 1915 together with the price of spelter ruling on the same day.

1915—	Sheet Zinc.	Spelter St. Louis.
March 1	13.00	10.25
March 5	13.50	11.00
April 23	13.75	12.12½
April 23	14.50	12.37½
April 27	15.50	13.75
April 28	16.00	13.75
April 30	17.50	13.75
May 18	18.50	15.12½
May 20	19.50	16.00
May 25	20.00	18.75
May 26	22.00	19.25
May 29	24.50	20.75
June 1	26.00	22.50
June 3	30.00	26.00
June 9	33.00	25.75
June 14	30.00	22.75
June 23	27.00	18.25
July 27	24.00	18.37½
August 6	21.00	16.12½
August 16	17.00	12.12½
August 23	15.00	12.00
August 24	16.00	12.75
November 4	16.50	15.12½
November 9	17.00	15.87½
November 11	17.50	16.12½
November 12	18.00	16.31¼
November 17	19.00	17.25
November 18	20.00	17.37½
November 22	21.00	18.75
November 23	22.00	18.75

LEAD (Monthly Averages.)

—New York*—			—St. Louis—		
1913.	1914.	1915.	1913.	1914.	1915.
Jan. 4.35	4.11	3.74	4.20	3.99½	3.57
Feb. 4.35	4.06	3.82	4.20	3.95	3.72
Mar. 4.35	3.97	4.03	4.21	3.8	3.98
Apr. 4.40	3.82	4.19	4.25½	3.70	4.11
May 4.36	3.90	4.23½	4.22	3.81	4.16
June 4.35	3.90	5.86	4.21	3.80	5.76
July 4.37	3.90	5.74	4.25	3.75	5.52
Aug. 4.63	3.90	4.75	4.56	3.73½	4.59
Sep. 4.75	3.86	4.62	4.62	3.67	4.53
Oct. 4.45	3.54	4.59½	4.31	3.39	4.51
Nov. 4.34	3.68	5.15	4.18	3.58	5.07
Dec. 4.06	3.80	....	3.94	3.67	....
Av. 4.40	3.87	....	4.26	3.74	....

* Trust price.

SPELTER (Monthly Averages.)

—New York—			—St. Louis—		
1913.	1914.	1915.	1913.	1914.	1915.
Jan. 7.23	5.33	6.52	7.04	5.14	6.33
Feb. 6.49	5.46	8.86	6.25	5.27	8.61
Mar. 6.29	5.35	10.12½	6.08	5.15	9.80
Apr. 5.79	5.22	11.51	5.59	5.03	11.22
May 5.51	5.16	15.82½	5.31	4.96	15.52
June 5.23½	5.12	22.63	5.05	4.93	22.14
July 5.41	5.03	20.80	5.23	4.84	20.53
Aug. 5.80	5.63	14.45	5.64	5.45	14.19
Sep. 5.83	5.52	14.49	5.65	5.33	14.10
Oct. 5.47	4.99½	....	5.27	4.81	13.89
Nov. 5.34	5.15	....	5.15	4.97	16.87½
Dec. 5.22	5.67	....	5.03	5.49	....
Av. 5.80	5.30	....	5.61	5.11½	....

WATERBURY SPELTER AVERAGES.

	1911.	1912.	1913.	1914.	1915.
Jan. 5.77	6.78	7.56	5.54	6.55	
Feb. 5.78	6.85	6.81	5.70	11.85	
Mar. 6.01	7.17	6.56	5.59	12.15	
Apr. 5.85	7.07	6.08	5.50	13.85	
May 5.76	7.13	5.77	5.28	20.55	
June 5.89	7.25	5.50	5.37	25.60	
July 6.11	7.46	5.61	5.26	24.90	
Aug. 6.29	7.34	5.99	5.66	19.30	
Sep. 6.29	7.72	6.13	5.91	17.85	
Oct. 6.49	7.83	5.74	5.23	16.85	
Nov. 6.90	7.74	5.60	5.38	19.36	
Dec. 6.81	7.65	5.44	5.90	....
Av... 6.16	7.33	6.06½	5.53½	....

SPELTER PRICES IN ST. LOUIS.

Extreme fluctuations of Prime Western Spelter, East St. Louis delivery, by months and years:

— 1914 —			— 1915 —		
High.	Low.	Av'ge.	High.	Low.	Av'ge.
Jan. 5.25	5.10	5.14	7.62½	5.55	6.33
Feb. 5.35	5.20	5.27	10.00	7.65	8.62
Mar. 5.22½	5.12½	5.15	11.00	8.87½	9.80
Apr. 5.12½	4.85	5.03	14.00	9.25	11.22
May 5.51	5.16	15.82½	5.31	4.96	15.52
June 4.97½	4.82½	4.93	27.00	17.50	22.14
July 4.95	4.80	4.84	22.75	17.75	20.53
Aug. 6.00	4.70	5.45	18.00	10.75	14.19
Sep. 5.85	4.95	5.35	15.25	13.37½	14.10
Oct. 5.00	4.60	4.81	14.62½	13.25	13.89
Nov. 5.20	4.80	4.97	19.00	14.37½	17.14
Dec. 5.65	5.20	5.49	....	....	....
Year 6.00	4.60	5.11½	....	....	....

The Steel Corporation is put down for 5,000 of which 2,400 are said to be operating. The balance will be ready by the first of January. In the case of the Kusa Spelter Company 1,600 are operating and 2,400 will be ready in December. Of all the American Zinc & Chemical Company's retorts at Langeloth 3,600 are now operating and the total number will be doubled the first four months of next year. Also Nicholson will double the plant at Kusa in the same period; (8,000 retorts instead of 4,000), and numerous extensions and enlargements are contemplated and in fact under way.

The best information we are able to get on the galvanizing business is that it is about 50%, and the common way of figuring was that this industry used about 200,000 tons in normal times. Hence the present consumption for galvanizing is 100,000 tons per annum. The brass mills we used to figure used 100,000 tons per annum but now we are willing to give them 2½ times as much, i.e., 250,000 tons per annum. We are exporting 120,000 tons per annum. The sheet and miscellaneous consumption which used to be 30,000 tons we are willing to double, i.e., 60,000 tons per annum; total 330,000 tons per annum. We hardly think the year's production will be more than 500,000 tons. Starting with a stock of 20,000 tons as we did this makes us about break even, which accounts for the late tense situation. With January easier conditions should prevail and ultimately we figure supply will exceed demand, unless the galvanizing business should go back to normal or the demand from the brass mills or for export increases.

HIGH-GRADE SPELTER.

Previous to the war there was an official classification of virgin spelter as high-grade, intermediate, brass special and prime Western. High-grade spelter had to contain at least 99.9% zinc and intermediate from 99.5 to 99.9%, besides conforming to certain specifications respecting the contents of lead, iron and cadmium. The only high-grade spelter was the well-known Horsehead and Bertha brands, and there was but a limited market for them. By restricting the production to the relatively small demand a premium of about 2½¢ per pound was realized for these brands on the average.

Soon after the war began, an extraordinary demand for spelter of this kind arose, and in 1915 a price as high as 40¢ per pound was received, which was about 15¢ per pound above the maximum for prime Western. The classification of intermediate spelter was practically wiped out, a range of 0.5% in zinc content being too wide. Spelter assaying 99.8 to 99.9% zinc fetched one price, that assaying 99.7 to 99.8% another, and so on. In fact, there developed a market for high-grade spelter, for high-grade intermediate, for lower grades of intermediate and thus downward. Until recently the Horsehead and Bertha brands continued to be the only high-grade spelter, strictly speaking, although the high-grade intermediate was commonly referred to as such. Lately the Mascot brand, produced from Tennessee ore, has been put in the high-grade class by refinement of methods of production.

The high-grade intermediate spelter is produced by the smelting of ore selected for its purity—especially its freedom from lead—or by the redistillation of common spelter. In either case the impurity that is particularly difficult to control is cadmium. Most of the splelters that analyze about 99.85% in zinc are equal to the high-grade specifications in the matters of lead and iron, but are a little too high in cadmium.

Now whether cadmium is a deleterious element in spelter, or not, is a moot point, even with regard to a considerable proportion of it. For many purposes—even military purposes—it is inconceivable that 0.05% Cd, plus or minus, can make any great difference. Readers of the "Journal" may recollect a discussion of the subject of cadmium in spelter in these pages about ten years ago, when some manufacturing experiments made by a well-known brass-maker were referred to and the deduction was drawn that for ordinary brass cadmium is not a deleterious element. Since then Mr. Rigg and his colleagues in the New Jersey Zinc Company have indisputably shown that cadmium—even in small proportion—is highly objectionable in spelter that is to be used for making slush castings. It is pretty well established, moreover, that for making cartridge brass the spelter should be as pure as can be obtained, for otherwise the cartridge cases deteriorate in course of time.

Engineering and Mining Journal

Review of Joplin Ore Market.

The zinc blende ore market for the month of November was unusually strong, buying was heavy and prices advanced steadily throughout the month. The greatest demand is for the high grade ore of this district which is bought largely for the manufacture of high grade pig-iron, which is bringing considerably more than the spot for quotations upon which the market is made in this district. The producers of high grade ore have been unable to sell their product every week at good prices, which, however, were the prices that the smelters were willing to pay for the quotations of Prime Western spot, only a consideration being given for the fact that high grade ore from this district makes a much higher grade of pig-iron than Prime Western and should bring a better price. Unusually favorable weather conditions prevailing in this district have combined with the high prices in helping production which has continued to increase approximately 120 tons over the weekly production of the previous month. The weekly sales have generally taken all the production, there being only a small portion held each week in reserve, a majority of the producers always sell their weekly production, if anything, like a fair price can be had. The market for blende ore the first part of the month was very strong at \$85 a ton net ton and advanced steadily throughout the month, closing with a high base price at \$115 per ton, the lowest base price paid during the month was \$85, there was a net difference of \$25 per ton between the grades for the month. The sales for the month total 25,970 tons, selling at an average price of \$96.92 per ton, giving a total price of \$2,502,282, the average weekly sales were 6,267. The total sales of zinc blende ore for the year is 263,350 tons at an average price of \$76.56 per ton, giving a total of \$20,162,479 which is greater than the 1914 production covering the same period by 37,967 tons, a greater valuation of \$11,474,630 and an increase in the average price of \$18.02 per ton. The estimated surplus blende ore held in the hands of the producers is 4,000 tons which is 500 tons greater than the estimated surplus of the previous month.

The market for calamine ore this month was very steady, prices advanced steadily

throughout the month, with a strong demand for the high grade ore at \$70 per ton to \$87 per ton which was paid the last week of the month. There was a demand for calamine ore each week that could not be supplied, the buyers being generally anxious to secure a surplus stock. The total sales for the month were 2,610 tons which brought an average price of \$65.41 per ton, bringing a total value of \$170,760. The monthly sales of calamine ore for the period of 1914 total 2,610 tons at an average price of \$65.41 per ton, which gives a total valuation of \$170,760, which is the same as the production of 1914, covering the same period of 1914, total 2,610 tons at an average price of \$65.41 per ton.

Lead ore was in demand throughout the entire month with prices fluctuating considerably, the first week when ore sold as low as \$50 per ton, the smelters usually take all the lead ore that is offered for sale each week at prevailing market prices, the Peabody Co. Company, being very heavily, taking all the ore they can get at their own prices, and with this company's demand all the ore that is offered for sale that week sells at \$8 below the high market price. The lowest price during the month for lead ore was \$10 a ton net ton, a loss of 80% lead. The sales for the month make a total of 1,600 tons, selling at an average price of \$62.20 per ton which gives a total valuation of \$99,520, the average weekly sales were 400 tons, this monthly production makes a total for the year of 4,800 tons at an average price of \$62.20, giving a total valuation of \$298,560, which is an increase over the valuation of the year production covering the same period of \$327,217.

The total value of all ore produced in this district for the 11 months period has passed is \$1,567,907, which is an increase of \$12,622,600 over the valuation of all ore produced covering the same period in 1914.

The Lead Investment Company, owners of the structure is as follows:

"Not a gold mine," says a well known local newspaper, "but a mine of confidence." The 1915 coal will be the first and last produced this year in the Joplin district. The district is producing the surplus of

zinc ore (including calamine) has been 555,323,525 pounds, which sold for \$20,694,186. During the corresponding period of 1914 the production of zinc was 474,189,212 pounds, which sold for \$8,898,709, thus showing an increase during the past 11 months of over 17% in tonnage but more than 132% in value. The production of lead for the 11 months just ended has been 81,507,115 pounds, which sold for \$2,145,982, while during the same period of last year the output was 77,024,756 pounds, which sold for \$1,782,400, thus showing an increase during the current period of less than 6% in output and a little more than 20% in value.

"In the April number of our 'Monthly Review' we estimated that the production of both ores in this district for the current year would exceed \$25,000,000. The total value at this writing is \$22,840,168, of which \$2,849,901 was produced during the month of November, or a weekly average of \$712,958. Should this average be maintained during the month of December it will bring the year's total to nearly \$25,000,000.

"During the week of November 7th the price for top grades of zinc advanced to \$100 a ton, followed by another advance to \$110 during the next week and a further advance to \$115 during the week ending November 21st, at which price the market held steady during the week of November 28th. One year ago during the same month the top prices for zinc were from \$42 to \$46 per ton. The current month closes with lead ore selling strong at \$70 a ton, as against a top price of \$47 at the same period last year. Current New York quotations on spelter are above \$18 per hundred pounds, as compared with a quotation of \$5.15 at the same time last year. Current quotations on pig lead are around \$5.25 per hundred, compared with a price of \$3.80 in 1914.

"The previous high record of zinc production in this district was in 1912 when the output amounted to 301,978 tons, which sold for \$15,454,000. If the present rate of output is maintained throughout December the total for 1915 will exceed this record by a little over 800 tons in production and approximately \$7,000,000 in value.

"Notwithstanding the unparalleled prosperity which this district has enjoyed throughout the current year it is to be congratulated upon having almost entirely es-

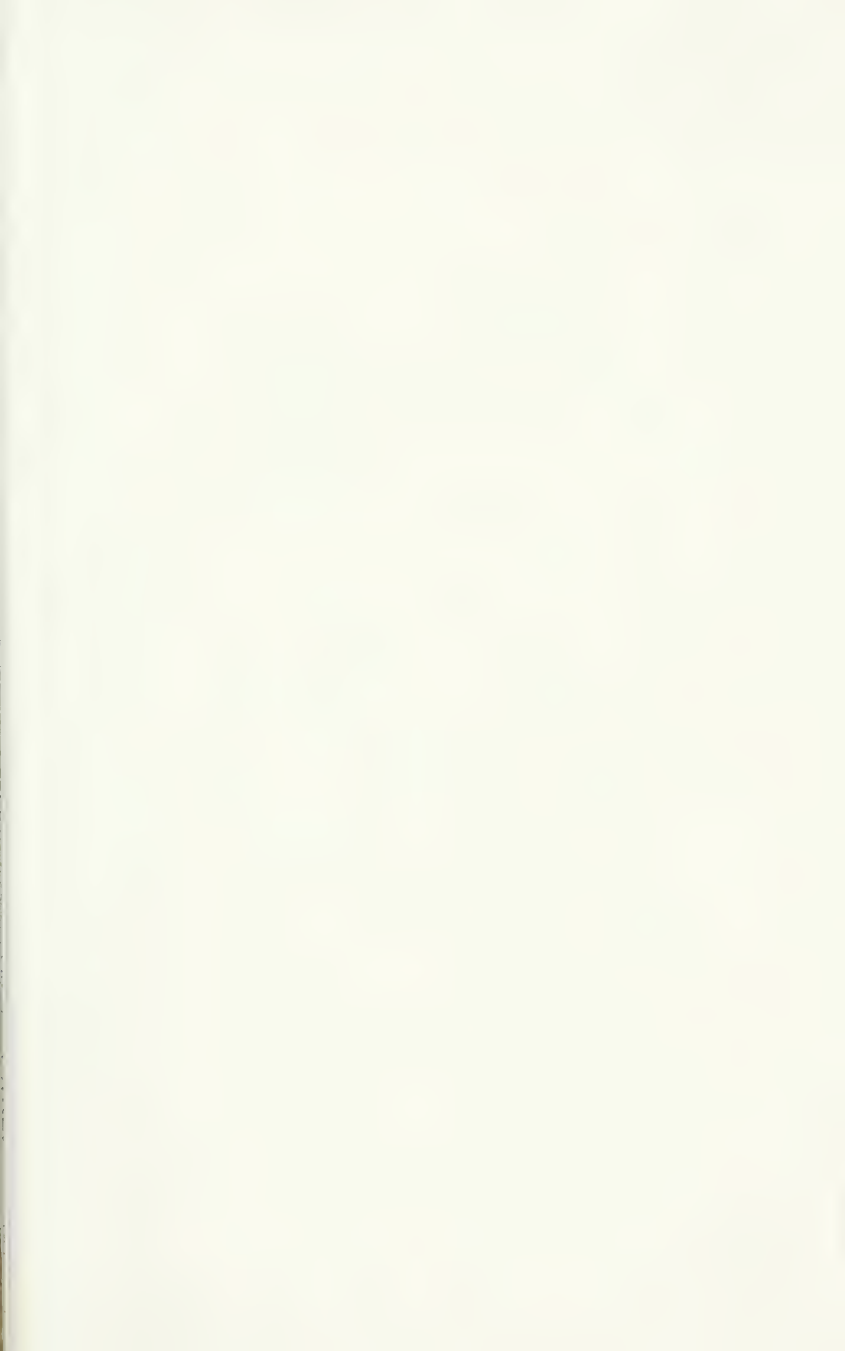
caped a repetition of the wildcat promotions and frenzied speculation such as occurred 16 years ago when zinc ore first reached the then record price of \$50 a ton, and we feel that every person engaged in the legitimate mining industry here owes much to the mining and financial press throughout the entire country for giving such generous publication to the 'Timely Warning' sent out from our offices on the first of last March, wherein we indicated that a record-breaking ore market was in sight and requested all publications having influence in financial circles to warn their readers as to what might be expected in the way of irresponsible and illegitimate promotions. That this warning was timely is evidenced by the fact that up to this writing only one such undertaking has come to the knowledge of the people of this district, and while numerous investments have been made in properties of known value, they have been first subjected to a thorough examination by competent and reliable persons, so that the splendid record of this year will not be dimmed in the same degree by a harvest of calamities."

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., required by the Act of August 24, 1912 of The Steel and Metal Digest, published monthly at New York, N. Y., for October 1, 1915

NAME OF—	POST OFFICE ADDRESS
Editor	
C. S. Trench	81 Fulton Street.
Managing Editor	
C. S. J. Trench	81 Fulton Street.
Business Manager	
A. R. Trench	81 Fulton Street.
Publisher.	
American Metal Market Co.	81 Fulton Street.
Owners: (Name and the names and addresses of stockholders holding 1 per cent or more of total amount of stock.)	
American Metal Market Co., (Corporation)	
	81 Fulton Street.
C. S. Trench	81 Fulton Street.
C. S. J. Trench	81 Fulton Street.
I. Trench	81 Fulton Street.
Known bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities:—None.	
(Signed) A. R. Trench, Business Manager.	
Sworn to and subscribed before me this thirty-first day of September, Nineteen hundred and fifteen	

John Bowen,
Notary Public, Kings County,
Ct. filed in New York County.

(My commission expires March 30th, 1916.)





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